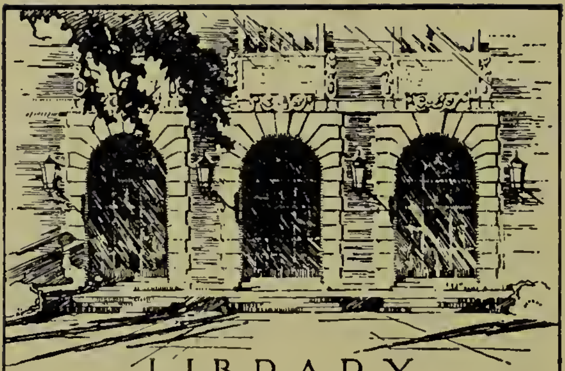

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THE
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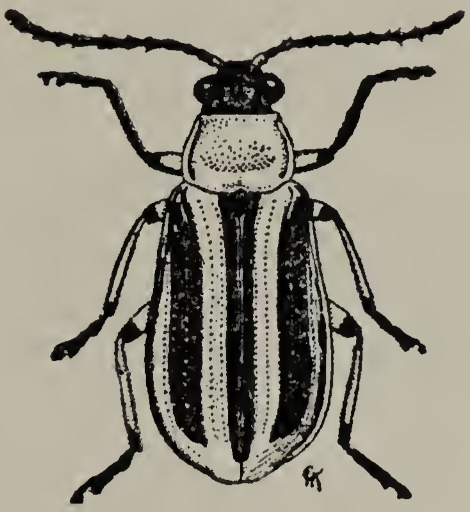

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1949

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THE COLEOPTERISTS' BULLETIN

Vol. III 1949 No. 1

BEETLE ECOLOGY (3)

By JOHN R. DIBB, F.R.E.S.
Wollaton, Nottingham

(Continued from Vol. II, p. 80)

The following list provides some of the general works upon the Insecta to which the reference should be made:

BRUES, C. T. & MELANDER, A. L. 1932. Classification of Insects.—*Bull. Mus. Comp. Zool. Harvard, 73.*

CHAMBERLAIN, W. J. 1941. Entomological Nomenclature and Literature.—Michigan, Ann Arbor.

FERRIS, G. F. 1928. The Principles of Systematic Entomology.—Stanford University Press.

HANDLIRSH, A., *in* SCHROEDER, C. 1925. Handbuch der Entomologie. Jena.

HORN, W. & SCHENKLING, S. 1928/29. Index Litteraturae Entomologicae. Serie 1 (up to 1863). Berlin.

IMMS, A. D. 1928. A General Textbook of Entomology. London.

NEAVE, S. A. (Editor) 1939/40. Nomenclator Zoologicus. London.

SCHENK, E. T. & MCMASTERS, F. H. 1936. Procedure in Taxonomy. Stanford University Press.

THOMPSON, W. R. (Editor) 1943/4. A Catalogue of the Parasites and Predators of Insect Pests. Belleville, Ont.

Our next requirement is some guidance upon the existing literature on the Beetles treating the Order as a whole, for it must be left to the individual to search out the specially appropriate references dealing with the localised fauna and other details attaching to the investigations within the particular area covered by his field and subsequent work.

The basic Coleopterological works include the following:

Coleopterorum Catalogus (W. JUNK) edited by S. SCHENKLING—current supplements edited by W. D. Hincks.

The above is the standard world catalogue of the beetles, the appropriate part of which is an essential requirement to any worker. Although some of the parts are now getting out of date, an inquiry to the editor of the supplements (W. D. HINCKS, F.R.E.S., Manchester University Museum, Manchester, England) brings information of the authors who have supplementary catalogues in preparation, and who may require to be contacted by a worker upon a particular group.

Of the basic works upon the classification the following are recommended:

LACORDAIRE et CHAPUIS. Genera d. Coleopteres.
GANGLBAUER. Die Kafer von Mittel Europa.
FOWLER. Fauna of British India—General Introduction & Cicindelidae & Paussidae.
LECONTE & HORN. Classification of the Coleoptera of N. America.
CHAPUIS et CANDEZE. Catalogue des larves des Coleopteres.
PERRIS. Larves de coleopteres.
WASMANN. Modern Biology & the Theory of Evolution.

There is, of course, a very considerable and important literature applicable to the classification of limited sections of the Coleoptera and to certain geographical regions only, as for example the Biologia Centrali-Americana of Bates, Sharp, Matthews and others, and the Fauna of British India of Andrewes, Arrow, Jacoby, Maulik, Marshall and others. It is not possible, however, to give here even selected references to the very large number of works restricted to families and genera, or to faunistic studies of circumscribed areas and the beetle ecologist must, therefore, build up his own literature list from this stage from the catalogues and bibliographies which come to him in the course of the over-all reading up of his subject.

Reverting to a consideration of the theory and practice attaching to the classification of the Coleoptera, the phylogenetic and bionomic methods of classifying have been briefly mentioned, but before we discuss the bionomic approach in greater detail it should be made clear that at the present state of the knowledge we are scarcely on the fringe of truly phylogenetic arrangements of the beetles. The more the coleopterist gets to know of the existing systematics of his Order the more he realizes that in most sections the characters used for differentiation of genera and species, and often also of the higher categories, are mere expedients for the practical purpose of superficial visual separations rather than a true record of evolutionary descent. To quote Kloet & Hincks (A Check List of British Insects, 1945) " . . . entomologists are only just at the beginning of their researches and are still engaged with the preliminaries of their work, the time has not yet come for phylogenetic classifications. All our present classifications are compromises, to a greater or lesser extent, between the almost negligible known and the vast unknown of insect systematics."

There is a strong school of thought which will not admit the use of those characters which are said to be influenced by environment, into the sound classification of a group of organisms on the grounds of instability of structure. The true recognition, however, of the evolution of the characters in question is of such difficulty in most instances that, in practice, we find all kinds of structures used almost indiscriminately. In opposition to the above-mentioned school are those who contend that the evolution of a group of organisms is brought about largely by changes in the conditions of environment, and therefore structural changes of the organism resulting therefrom represent true evolutionary characters.

The beetle ecologist may, or may not, keep an open mind upon the above question, but adds his contribution to the sum of the whole knowledge by showing that a wide knowledge, including a classification of the Coleoptera, can be built up from data which he collects during his field studies. These studies, termed bionomics, are of the living beetles combining the gathering of direct information about the organisms themselves and how environmental factors affect the species. Naturally, when collecting and observing the beetles in the field, each separate observation rests, as a rule, upon an individual member of a particular species and we must always remember that before we can draw any conclusions at all from such data, we must combine the results obtained from numerous separate observations of an individual of the same species before we are entitled to allocate any specialized behaviour or condition to that species.

Acting on these lines we are soon able to recognize the natural habitats of many of our local species, as distinct from the chance situations. Once the natural habitat is known the species can be found, for observational and other purposes, far more rapidly than by indiscriminate hunting. In any species in which we are interested, the endeavour should be made to work out the life history, and the bionomics of each stage should be carefully separated. In this way it is possible to provide the information required to draw up bionomic classifications applicable to the egg, larval, pupal and imaginal stages, and as the habitats and environmental factors of each stage are often entirely different, it is essential to have the properly separate data attaching to each.

(to be continued)

BOOK REVIEW

BIOLOGY OF AQUATIC AND LITTORAL INSECTS, by R. L. Usinger, Ira La Rivers, H. P. Chandler and W. W. Wirth. Univ. Cal. Syllabus Series, Univ. Cal. Press, Berkeley and Los Angeles, 244 pp. (mimeographed), March 1948. The 61 pages of this book devoted to Coleoptera will be of interest to all students of western beetles, and go far beyond elementary textbook material. Pages 59—85 and 189—222 contain keys to the families, genera, and species of the aquatic beetles of California. The keys to families and to the genera of Dytiscidae, Hydrophilidae, Gyrinidae, Staphylinidae (2 genera), Limnebiidae, Psephenidae, Dryopidae and Elmidae, and Chrysomelidae (2 genera) are to larvae as well as adults. 237 species are keyed as follows: Carabidae 1, Amphizoidae 1, Omophronidae 4, Haliplidae 13, Dytiscidae 126, Gyrinidae 9, Limnebiidae 17, Hydrophilidae 80, Staphylinidae 4, Melyridae 5, Eurystethidae 2, Dryopidae 6, Elmidae 15, Psephenidae 2, Hydroscaphidae 1, Heteroceridae 5, Sphaeriidae 1, Limnichidae 7, Chrysomelidae 10, Curculionidae 8. In Hydrophilidae the 4 species of *Helophorus* are listed without being keyed. The only genus of Sphaeridiinae to be included is *Cercyon,* probably because some of the species occur sometimes in mud. Omophronidae and Heteroceridae are included as littoral forms, but the inclusion of such groups and the exclusion of numerous almost equally littoral groups of Carabidae (*Elaphrus, Clivina, Bembidion,* etc.) and Staphylinidae (*Stenus,* etc.) can scarcely be justified on ecological grounds.

The portion on Coleoptera is, in general, the work of Ira La Rivers and H. P. Chandler, and was reviewed by that eminent hydrocoleopterist, Hugh B. Leech.—Meville H. Hatch, University of Washington, Seattle, Wash.

CHANGE OF ADDRESS

Dr. Henry K. Townes, Jr., formerly of the Division of Insects, United States National Museum, Washington, D. C., new address is: Department of Zoology and Entomology, North Carolina State College, Raleigh, N. C.

BEETLES IN DRIFT

By Kenneth M. Fender
McMinnville, Oregon

One of the most productive forms of beetle collecting and one that is frequently neglected is that of collecting from high water drift. When conditions are right, hundreds of beetles can be collected in this manner. An annual event at our little farm is the gathering in of a gunny sack full of debris from the swollen waters of the little creek, Cozine Creek by name, that runs through the place.

With the coming of the first real winter rains, the creeks begin to swell. As the rains continue the waters rise higher and higher and soon a raging torrent is rushing down the little valley washing out the dead grasses, twigs and whatever else is loose and light. Many insects and arthropods are invariably caught in this torrent who in their mad fight for life grab at anything within reach. Frequently the floating grasses and twigs offer the only refuge and to these they cling tenaciously. As this insect-laden debris floats down stream it catches on fences, branches or any other fixed object in its path and before long a large deposit of drift has collected that is laden with a concentration of insects. The beetles and bugs usually predominate the collection because they do not have easy escape of the free winged forms and they are hardy enough to withstand the punishment of such an experience.

On December 2, 1948 the high waters came. After work that evening I went down to the edge of the creek armed with a gunny sack. My destination was a spot where the creek narrows to pass under a bridge. A fence crosses the creek here and a large pile of drift had accumulated and was still growing. Soon the sack was filled with debris and brought to the house.

I, always one to put off things, have never purchased or made a drying funnel so I have to depend on a large plywood board and an aspirator to do my collecting. A handful of drift was tossed on the middle of the board and I sucked on the aspirator as the warmed up beetles scrambled elusively in every direction. About five hours of nearly steady sucking was required before the task was completed to my satisfaction and even so numerous specimens were doubtless overlooked or escaped. Nevertheless several hundred beetles fell victims to my efforts.

Staphylinidae were the most abundant with *Philonthus* the principal genus. Several species of this genus were present ranging from the small *P. microphthalmus* Horn to the large *P. tetragonocephalus* Notm. The Aleocharinae were represented by several species as were the Paederinae. In the Carabidae, *Bembidion* was the dominant genus with three or four species. The largest range in size was here represented with *Carabus nemoralis* Mull. the largest species taken and *Tachys sp.* vying with Orthoperidae for the smallest honors. Several species of *Cercyon* were taken along with four or five other members of the Hydrophilidae. Other families represented were Orthoperidae, Pselaphidae, Histeridae, Anthicidae, Elateridae, Trixagidae (Throscidae), Helodidae, Nitidulidae, Cryptophagidae, Lathridiidae, Coccinellidae, Tenebrionidae, Scarabaeidae, Chrysomelidae, Mylabridae, Curculionidae and Scolytidae. The Cantharidae were represented by larvae apparently of the genus *Cantharis*.

The source of Cozine Creek is in the east slope foot hills of the Coast Range from where it wends its way to the Yamhill River, a tributary of the Willamette which flows to the Columbia River and finally to the sea. In its meanderings it covers several miles and collects additional water from small tributaries before it reaches our place, not far from its mouth. As the creek was swollen throughout its course it is quite plausible that we were collecting beetles from an area of considerable extent, these being concentrated in the debris.

The pleasant part of this kind of collecting is that it occurs during the off season, when one is occupied with setting, labeling and arranging the previous season's collections. It provides a pleasant and profitable diversion from these more or less tedious tasks. It is a form of collecting that should be more universally employed.

A NOTE ON THE OCCURRENCE OF CLEONUS PIGER (SCOP.) A EUROPEAN WEEVIL, NEAR OTTAWA, ONTARIO

By S. D. Hicks
Ottawa, Ont.

It seems worthwhile at this time to publish a further summary account pertaining to the known distribution in America of the large European weevil *Cleonus piger* (Scop.). The species was first found in North America at Branchport in New York State by Crosby and Blauvelt in 1929 (1930, Ent. News, 41:164). Brown (1940, Canad. Ent. 72:77) records a single specimen, taken in 1933, from Cascapedia, Quebec, which is situated near the southern shore of the Gaspe peninsula, and many specimens taken at Oswego, N. Y., in 1935. Hicks (1947, Canad. Ent. 79:119) reports one specimen collected by Mrs. G. Henderson at St. Catharines in the Niagara peninsula in 1942, and large numbers of these weevils taken on their foodplant, Canada thistle (*Cirsium arvense* (L.) Scop.) near Montreal in 1946. Also in the same note, one specimen is recorded from Ottawa in 1946. Finally, a single specimen was picked up unexpectedly by a young student, F. DiLabio, near Blackburn, Ontario, about seven miles east of Ottawa, on May 30, 1948.

The finding of two more specimens on the sidewalk leading into the Central Experimental Farm on the outskirts of Ottawa aroused some interest. An investigation of the ground adjacent to the walk revealed four adults clinging to the leaves of Canada thistle. The beetles were taken one by one from young individual plants after considerable searching on June 4, 1948, when the temperature was about 85°F. It was not determined whether any leaves had been chewed by the weevils as they dropped quickly to the ground on being approached. Later, on July 27, a specimen was beaten from a hawthorn tree in the farm grounds.

Representative specimens from all the localities mentioned have been deposited in the Canadian National Collection.

A CLASSIFICATION OF LARVAE AND ADULTS OF THE GENUS PHYLLOPHAGA, by ADAM G. BOVING,

Memoir No. 2, *Entomological Society of Washington, 1942.*

This study, made necessary by the economic importance of many species of the group, is the foremost attempt to correlate the classification of a complex genus on structural characters of the larvae and the adults. It has a particular value to those interested in scarabaeids. It should be of nearly equal interest to students of taxonomy in general, particularly in its organization and execution. The position of the genus in the Melolonthini is indicated and nearly 60 species are treated in detail from the standpoint of larvae. A complete terminology is given for the morphological features of the genitalia of the adult males making it possible to treat them in a key for the first time. The work is illustrated by 6 text figures and 11 plates of line drawings, carefully executed by the author.

The cost of the Memoir is $3.00 and it can be purchased from the Corresponding Secretary, Entomological Society of Washington, U. S. National Museum, Washington 25, D. C.

NEWS

Continuing its long-range program aimed at throwing light on the nature and origins of the insect faunas of California and the Southwest, the California Academy of Sciences' Department of Entomology has launched another expedition into northwestern Mexico. This time the area to be visited is that lying southwest and northwest of Guadalajara: the states of Colima, Jalisco, Nayarit, and Sinaloa.

This is a critical area to biologists. Here is found the curious mixture of Sonoran desert with pockets of true tropical jungle. Like much of Mexico, this region presents drastic changes of life zone within short distances.

Before 1906, the Academy possessed rich collections from this area, but these were destroyed in San Francisco's great fire and have not since been replaced. Knowledge of this region is vital to the interpretation of the biota of nearby Baja California, one of the Academy's areas of specialization.

Members of the party are Dr. E. S. Ross, Curator of Insects; Mrs. Ross and Mr. H. B. Leech, Curator of Coleoptera. The expedition is expected to be from six to eight weeks in the field.

—From "Academy News Letter"

THE ABDOMINAL MORPHOLOGY OF MALE SESSINIA DECOLOR (FAIRM.): OEDEMERIDAE

By Ross H. Arnett, Jr.
Bureau of Entomology and Plant Quarantine
Washington, D. C.

The present paper and illustrations of *Sessinia decolor* (Fairm.) are published at this time in order to clarify certain points in the terminology used in my forthcoming revision of the Nearctic Oedemeridae. These figures represent the abdomen well distended, being drawn from a fresh specimen which was soaked for a short time in weak caustic and then inflated by injection with absolute alcohol which fixed it in the distended position.

The abdomen (fig. 1) of the Oedemeridae belongs to the cryptogaster type, type III of Jeannel and Paulian (1944). Tergites one to eight are present, distinct, and each is associated with a spiracle. Tergite nine is also present, but there is no evidence of a spiracle nine. There is no indication of a sternite one, the absence of which is generally accepted as true for all Coleoptera. Sternites two and three are solidly united and this sternite is as broad as tergite two and three together. Stenites four to eight are separate and each is associated with a spiracle. Sternite nine is present and well developed. It will be noted that the spiracles are located on the membranous margins of the tergites, in a central position in the case of tergites three to six. The line separating the main part of the tergite from the membranous part bearing the spiracle is a deep fold and not a true suture.

The apical abdominal segments, as well as the genitalia* of male Oedemeridae are subject to considerable modification. Segments eight and nine undoubtedly take part in the copulatory actions. In many cases segments eight and nine are subject to greater modifications than the genitalia, and offer many generic and specific characters.

Figure two shows the scleritized as well as the membranous parts of the apical segments and genitalia in detail. In normal position these membranous areas are folded back into the abdomen so that the apical portions of the membrane is directed dorsad. A tube, the seminal duct, runs inside of the median lobe. The eversible internal sac, which is found in a great many other beetles, is absent. The anus opens at a point just before the apex of tergite nine. The median lobe and tegmen are extruded immediately below this point. I have preferred to use the term "tegmen" rather than "lateral lobes" because in many species of Oedemeridae this structure is a single trough-like piece lying ventrad to the median lobe and not two lobes lying one on each side of the median lobe as in many beetle species. I have also preferred the term "median lobe" to the term "aedeagus," which, following Sharp and Muir (1912), refers to the median lobe and tegmen together.

---

* Genitalia may be defined as the portion of the abdomen between sternite nine and the anus which bears the seminal duct and the internal sac.

Up to this point, most of the structures discussed are nearly universally understood. There is a structure present in male Oedemerids which I have termed *tegminite*, which, I believe, has not heretofore been discussed. It is located ventrally in the membrane between the apex of sternite nine and the base of the tegmen, with the apex hanging free. In the species illustrated it appears as a slender rod, somewhat expanded apically. The size and shape of this structure varies considerably throughout the family. In the present species, it appears more closely associated with sternite nine than the tegmen, though the name *tegminite* is intended to imply that it is, or at least was originally more closely associated with the tegmen. I have been led to believe that it is a modification of the basal part of the tegmen because in theoretically primitive genera, such as *Calopus*, this structure is nearly as large as the tegmen, of similar shape, and separated from the tegmen by only a narrow area of membrane. In other families, the tegmen is composed of two parts separated by only a very narrow suture or even by no more than an impressed line. This has led me to conclude that the tegiminite is a structure which has broken away from the tegmen, and not a division of the apex of sternite nine. Such a belief is far from established however, and a study of the musculature, tracheation and a comparison with the structure of the genitalia of many other forms will be necessary before the homology of this part can be determined.

At the present writing, I know of only one one other group of Coleoptera which has a structure comparable to the tegiminite represented. I have observed what is perhaps the same part in some Pythidae.

Finally, it is necessary to point out that the general form of the genitalia illustrated represents only one of five types, (or perhaps more) found in the Oedemeridae. This I have termed the "Ascelerini-type".

REFERENCES CITED

Jeannel, R. & R. Paulian, 1944, Morphologie Abdominale des Coleopteres et Systematique de l'Ordre, *Rev. Fran. D'Ent.*, 11:65-110.

Sharp, D. & F. Muir, The Comparative Anatomy of the Male Genital Tube in Coleoptera, *Trans. Ent. Soc. Lond. for 1912*, 477-642, pls. XLII-LXXVII.

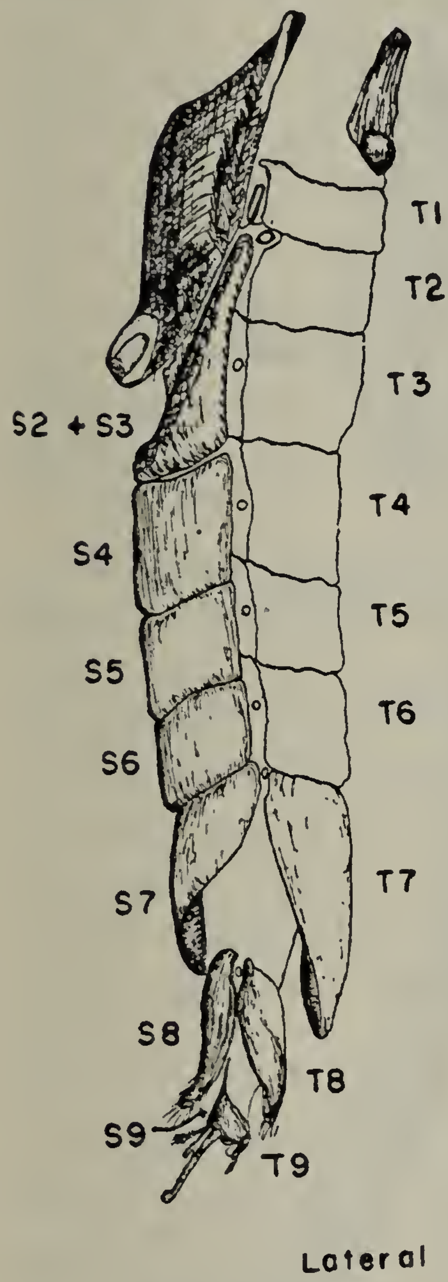

Figure 1

Fig. 1. Male, lateral view of the abdomen of *Sessinia decolor* (Fairm.). Drawn from a distended specimen.

Fig. 2. Male, lateral and ventral views of the details of the apical abdominal segments and genitalia of *Sessinia decolor* (Fairm.). Drawn from a distended specimen.

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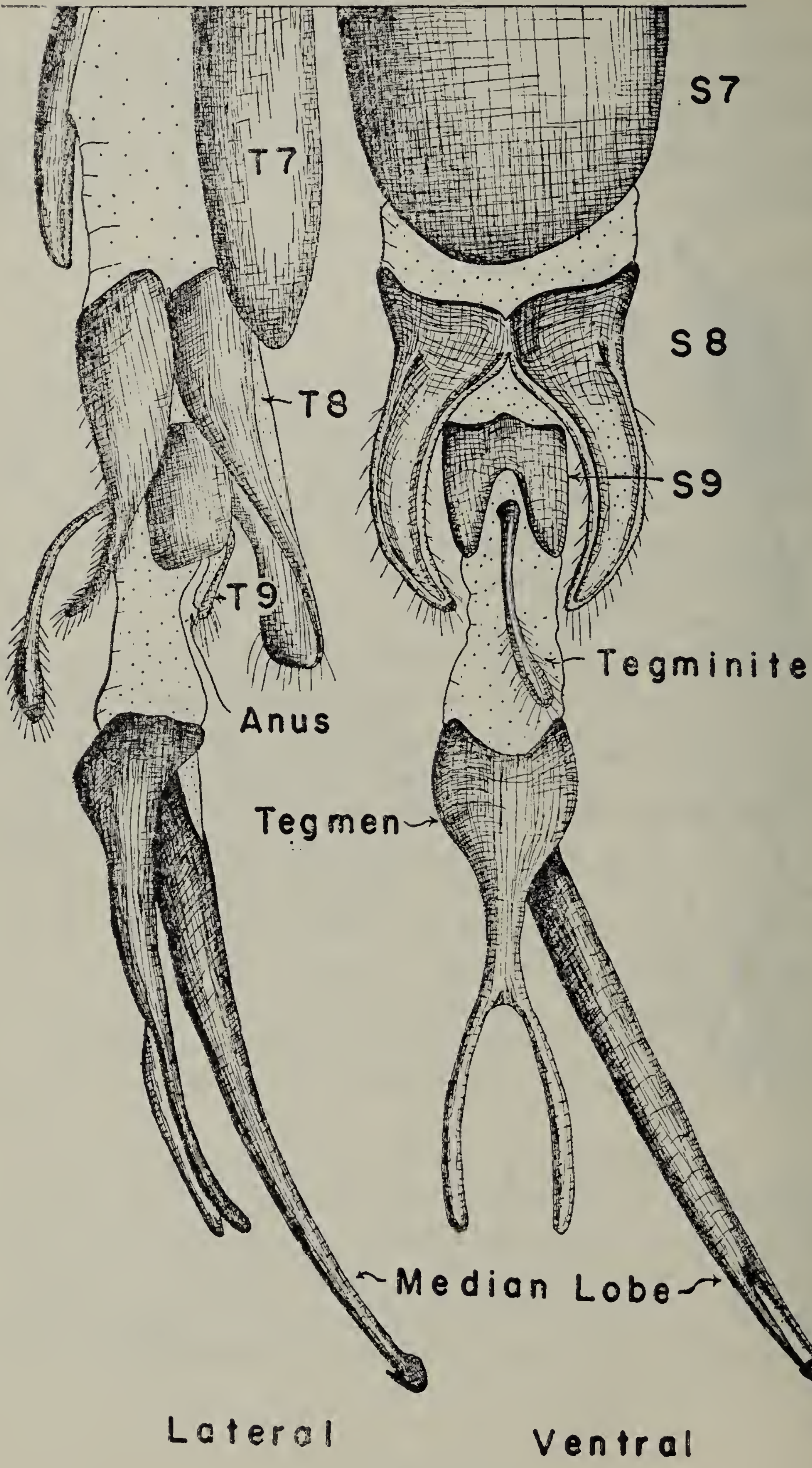
S7
T7
S8
T8
S9
T9
Tegminite
Anus
Tegmen
Median Lobe
Lateral
Ventral

Figure 2

ADDITIONS TO:

"1948 List of Determiners and Revisors and Exchange Notices"

NITIDULIDAE

Revising *Meligethes,* will determine material of this genus. I would like to receive material of this genus from any place in the world in exchange for British Beetles. Dr. Alan M. Easton, Roadside Cottage, Lower Road, Great Bookham, Surry, England.

MELOIDAE, CERAMBYCIDAE, AND CHRYSOMELIDAE

Will determine Meloidae and certain groups of Cerambycidae and Chrysomelidae. I would like material from the arid Southwestern U.S. and Missouri of Meloidae. Desire to exchange specimens of all the above-named groups plus Curculionidae. I can offer material of these groups in exchange. W. R. Enns, Department of Entomology, University of Missouri, Columbia, Missouri.

ORIENT-PACIFIC CERAMBYCIDAE, CHRYSOMELIDAE, LAGRIIDAE

Revising these groups, and will determine same. I would like material from Asia and Pacific area of these groups and can offer in exchange South China insects. J. L. Gressitt, Lingnan University, Canton, China.

SCARABAEIDAE & BEETLES OF MEDICAL IMPORTANCE

I will determine European dung-beetles (Scarabaeidae). I would like to receive material of medical or veterinary importance such as vesicating Staphylinidae, also American dung-beetles. I can offer material of European Coleoptera, especially dung-beetles. J. Theodorides, Entomologie Coloniale, Museum Nat. Hist. Nat., 57 rue Cuvier, Paris, France.

CHRYSOMELIDAE

I can offer material of Chrysomelidae of Madagascar for study. Dr. R. Paulian, Assistant Director, Institut de Recherche Scientifique, Tananarive-Tsimbazaza, Madagascar.

HISTERIDAE

Revising various genera of Histeridae, particularly N. America and Neotropics. I will determine general Histeridae of the world. I would like to receive material from any place in the world, particularly of the genera *Acritus, Bacanius* and *Aeletes.* R. L. Wenzel, Div. of Insects, Chicago Natural History of Museum, Roosevelt Rd. and Lake Shore Dr., Chicago 5, Ill.

ANTHICIDAE
Revising Anthicidae, *Notoxus, Mecynotarsus* and *Amblyderus.* Will determine these groups. I would like to receive material from the Nearctic Region of the genera outline above. I can offer material of misc. Coleoptera in exchange. Kenneth S. Hagen, Div. of Biological Control, University of California, 1050 San Pablo Ave., Albany 6, Calif.

EDITOR.

BOOK NOTICE

Notice has been received of a book in press entitled: "*Coleoptera or Beetles East of the Great Plains,*" by J. Gordon Edwards. It is lithographed, 8½ x 11 inches, 181 pages, 449 illustrations, small print, cloth-bound. It will sell for $3.50, including postage and tax. All advance orders should be mailed to J. Gordon Edwards, 392 Prairie Ave., Wilmington, Ohio.

This book will deal with the adults as well as the larvae of each family (136 families), tells how they differ from similar larvae, gives general characters and habitats of each family and of common or economically important species, and offers a rather complete and up-to-date list of references for each family. Keys and simple descriptions lead to easy determination of the genera in almost every family, and the literature cited was chosen to provide convenient species identification.

A more complete review will be written as soon as this book is off the press.

EDITOR.

FIFTH SUPPLEMENT CORRIGENDA

Through an unfortunate oversight the publications of Dr. J. Manson Valentine of Highlands, North Carolina, were omitted from the bibliography of the Fifth Supplement to the Leng Catalogue. We apologize to Dr. Valentine and present the list here.

40.	A major Cycle in insect flights	Science,91,p.544.
42.	Prepar. & preserv. of insects	Smiths.Misc.Coll.,103,1-16.
43.	Ins. taxon. & prin. of speciation	Jl.Wash.Acad.Sci.,33,353-358.
45.	Speciation...in Pseudanophthalmus	Tr.Conn.Ac.Sci.,36,631-672.
48.	N. anophthalmids...Appalachian	Ala.Mus.N.H.,Paper 27,1-19.

The following new forms and assignments are from the 1945 paper:

Pseudanophthalmus	
lodingi Val.	
s. profundus Val. 45-637	Ala
s. aladdini Val. 45-637	Ala
s. aquaticus Val. 45-638	Ala
s. meridionalis Val. 45-639	Ala
s. humeralis Val.	Tenn
s. brevis Val.	Tenn
jonesi Val. 45-645	Tenn.,Ala
hubbardi (Barber)	
s. hubbardi s.str.	Va
s. avernus Val. 45-648	Va
s. limicola Jeann.	Va
s. parvicollis Jeann.	Va
s. potomaca Val.	W. Va
s. senecae Val.	W. Va
petrunkevitchi Val. 45-652	Va

A few other notes on errors or omissions are appended here.

Page 17. Stylopidae, Genus Diozocera, add. reference Pierce 11-504

23. Byturinae was intended by Barber to be a subfamily of a separate family Byturidae.

33. After Phyllophaga add genus Amphimallon Berth. 27-362 with species majalis Razoum. 89-289 . . . Eur, N.Y. (vide Gambrell, Mendall, & Smith 42-289).

46. Ref. to Chaetechus asperatus should be 43-116 (not 44-116).

46. Delete Apotomoderes albicans as not North Americans.

48. Move heading Cossoninae between Faustinus and Acamptus.

60. Add Frost, C. A. 09. Col. taken at Framingham, Mass.

Psyche, 26, 67-68.

69. Add Pic, M. 33. Col. exot. . . nouv. L'Echange, 49, no. 453, p. 12.

69. Add Razoumowsky, G. von 89. Hist. Nat. du Jorat . . . I, 1789, 133-239, 289-301.

R. E. and R. M. Blackwelder.

CURRENT LITERATURE ON COLEOPTERA

No attempt will be made by the editor to approach completeness in listing all papers in Coleoptera published between issues of the bulletin. The reader is referred to "Entomoligcal News" and "Bibliography of Agriculture" for more complete current listings. No title published in these two publications will be repeated here, except when accompanied by a short review. The reader is invited to send titles for inclusion in this section and reviews are particularly solicited. Papers marked with an (*) contain keys.

1. Balfour-Browne, J., *Notes on Sphaeridium (Coleoptera: Palpicornia; Sphaeridiinae)*, Entomologist, 81: 240-244, 1948.
2. Balfour-Browne, J., *Further note on Ochthebius kaninensis B. Poppius (Col., Hydrophilidae)*, Ent. Mon. Mag., 84: 239-240, 1948.
3. Blake, Doris H., *Seven new flea beetles from the West Indies (Coleoptera: Chrysomelidae)*, Psyche, 55: 141-149, 1 pl., 1948.
4. Blackwelder, Richard E., *The principle of priority in biological nomenclature*, Jour. Wash. Acad. Sc., 38: 306-309, 1948.
5. Fender, Kenneth, *The Cavicollis-corneus group of Podabrus (Coleoptera: Cantharidae)*, Pan-Pac. Ent., 24: 131-140, 1948.
6. Fisher, W. S., *Results of the Oxford University Cajman Islands Biological Expedition, 1938. Descriptions of five new species and one variety of Cerambycidae (Col.)*, Ent. Monthly Mag., 84: 225-228, 1948.
7. Gilmour, E. F., *Miscellaneous new Lamiinae (Col., Cerambycidae)*, Ent. Mon. Mag., 84: 229-231, 1948.
8. Rees, Bryant, *The larva of Catana clauseni Chapin, and its comparison with the larva of Delphastus pusillus (LeC.) (Coleoptera, Coccinellidae)*, Proc. Ent. Soc. Wash., 50: 231-234, 1948.
9. Werner, F. G., and R. L. Edwards, *Leptinus americana LeConte taken on a Shrew (Coleoptera: Leptinidae)*, Psyche, 55: 51-54, 1948.

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

OEDEMERIDAE—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

CARABIDAE—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

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Volume III 1949 Number 2

THE
COLEOPTERISTS' BULLETIN

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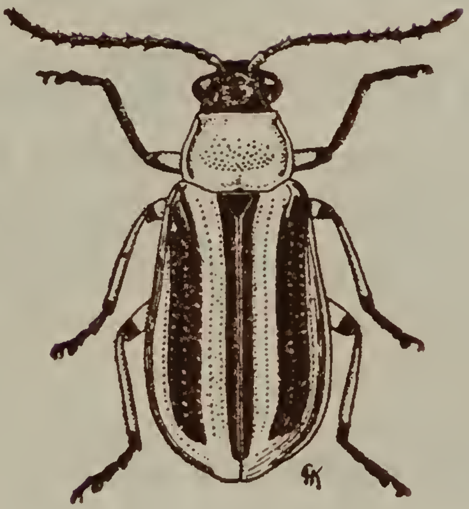

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EDITORIAL POLICY

Acceptable manuscripts must be confined to the field of Coleopterology, or of a general nature of interest to Coleopterists. Each paper is allowed a reasonable number of illustrations, both line and halftones, without expense to the author and reprints are provided free. All reprints must be ordered when submitting the manuscript. Manuscripts should be typewritten, double spaced; illustrations and charts on separate pages. Galley proofs will be sent to each author for corrections.

We cannot exchange with other publications or provide complimentary issues or subscriptions.

A limited number of advertisements will be accepted for the back pages.

A NEW DEPARTMENT

With this issue we are bringing together under the heading BIBLIOGRAPHIA all book reviews, bibliographies, and lists of current literature. This department is edited by Richard E. Blackwelder.

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PRINTED IN U.S.A.

THE COLEOPTERISTS' BULLETIN

Vol. III 1949 No. 2

LET GEORGE DO IT

By Ira La Rivers,
University of Nevada, Reno

Noting the price and size of the latest supplement (5th) to the Leng Catalog brings to mind some suggestions on such future compilations and their possible relations to coleopterists. Now that the Coleopterists' Bulletin has become established, and something of a formal framework of unity and co-operation is apparent among coleopterists, reason demands that the final, logical step is in order. We need some sort of a formal organization of coleopterists. I am not advocating this for the usual reasons that such groups are rationalized into being (i.e., for the association of mutually sympathetic tastes and ideas), commendable as they may be, but for the more practical purpose of spreading such tasks as supplements to the Leng Catalog (or, much more badly needed, an entirely new catalog) about among many individuals instead of one or two. The advantages in time saved and accuracy achieved are so tremendous and obvious in any system which calls upon respective specialists to draw up their portions of supplements or catalogs that little further comment is needed here. It is a common device of the European taxonomist. The average "well-bred" specialist has a file card catalog which he keeps up to date—this calls only for transcribing what already exists, and is much less laborious than wading through strange literature periodically to do a job which must be done if we are to continue progressing.

Too many of us have fallen into the psychology of "letting George do it," and we wait patiently for supplements which we must have to do our work properly, but we participate only when asked directly. This last thought is not advanced as a complaint or denunciation, being neither; we all realize that the situation has never before been so favorable for the establishment and realization of concrete mutual aid among coleopterists. Past workers are not to be blamed for being unable to achieve the unity of common effort which a formal organization could promise us now.

Under such a system of supplements-by-specialists, other advantages would accrue. One of the most noticeable things about the present Fifth supplement, as Dr. Arnett has already remarked editorially, is the stiff price. In my personal experience, at least, this will be the first time I have ever paid $7.50 for 87 pages of printed matter just off the press. I don't doubt that the price is made necessary by the unique type of labor involved, plus today's notoriously high printing and publishing costs. However, there would be available to organized coleopterists other and considerably cheaper sources of publication even at the present time.

Since taxonomists will probably agree almost unanimously that catalogs and supplements are indispensable to the modern woker, no one can deny that the publication of such would constitute a real contribution to the science. As such a contribution, there are probably a rather large number of scientific journals which would accept a supplement of 100 pages or less as a paper to be published in one of their numbers along with the contributions of a more standard nature. The fine catalogs on several groups which have appeared from the American Museum of Natural History are a case in point. Certainly, many learned societies have published, from time-to-time, volumes as large as the combined Leng Catalog and its five supplements. If the large size of a projected catalog made it prohibitive to publish as one unit, it could appear in parts, in the same or different journals, providing such journals corresponded reasonably in size and format.

Regardless of how impractical some of these hastily conceived thoughts on the subject may appear to those who read this, there can be little doubt, I feel, that one fact remains evident—there are a number of solutions to the problems just posed other than that particular one being utilized at the present time, anyone of which gives promise of being some material advantage over the present system. We will progress only by attempting such solutions, of which many additional ones will occur to readers of this which have not occurred to me. One thing is certain—the time is past when one or two individuals can be expected to do the cataloging work of the entire coleopterological fraternity.

In closing these random thoughts, I would like to suggest that coleopterists in general owe a large debt to gratitude to the Blackwelders for the fine task in completing the Fifth supplement. We have "let George do it" and, if I may speak for one or two besides myself, are extremely gratified at the results. I can only hope that future coleopterists will avoid tying a valuable taxonomist down to a menial task we could all do with little effort.

BEETLE ECOLOGY (4)

By John R. Dibb, F.R.E.S.
Wollaton, Nottingham

(Continued from Vol. III, p. 3)

More attention is now being given to the bionomics and systematics of the larval stage but we have not yet sufficient recorded data for any comprehensive bionomic classification, and still less in regard to the egg and pupal stages. The bionomics of the adults, as would be expected, are much more advanced and the position has been reached at which at least a preliminary bionomic classification can be drawn up. An attempt has recently been made in this connection in regard to the British beetle fauna in my Field Book of Beetles which, whilst only of an introductory nature, nevertheless applies the ecological data in the practical form of a bionomic key to the species covered. This work was made possible through the more extended knowledge of environmental data, including reliable information upon host plants and natural habitats referred to in an ever increasing number of recorded field observations now appearing in the literature attaching to faunistic and other aspects of coleopterological work.

It is only in comparatively recent years, however, that such ecological information has been included in the published results, and there is not yet a sufficient knowledge of the bionomics of any country's beetle fauna to cover more than a fraction of the indigenus species. It is for the beetle ecologist to supply more fully documented records of his field observations and captures, and the following list of the more important data attaching to each may be taken as a guide to the required information.

Schedule of Field Data. Specimen No. ....

1. Locus (General): County, Department or State, and Country.
2. Locus (Particular): Place nearest named Village, District and Town.
3. Date: Day, month and year.
4. Time Adopting 24 hour clock and referring to standard e.g. G.M.T.
5. Altitude.
6. Season: Spring, summer, autumn or winter.
7. Temperature: Actual, also reference to summer and winter maximum and minimum ranges.
8. Humidity: General note on humidity range of locus.
9. Weather condition: General at time of capture.

10. Geological formation of locus: Surface soil and rock foundation.
11. Plant ecology: Nature of plant community of locus.
12. Host: Kind of plant, moss, fungus, carrion, etc.
13. Host condition: Age and condition.
14. Position in relation to host.
15. Description of habitat.
16. Position in relation to habitat.
17. Plant and animal associates.
18. Parasites and/or predators.
19. Behaviour: Description of attitude before disturbing and note of nature of any movement exhibited.
20. Aquatic species: Type of habitat general. Type of water: fresh, salt, brackish, impure, stagnane, flowing, etc.
21. Miscellaneous additional field observations.
22. Specimen name and/or reference number, the latter being the number on the container of the specimen and also in the field note-book containing the information gathered for this schedule.
23. Name of collector/observer.

With completed schedules writen upon the above lines in regard to all the special recorded within a particular geographical area it would be possible to draw up a workable bionomic key, classifying groups of species according to their natural habitats and reducing these groups to still smaller divisions according to such factors as host preferences, altitude, etc. A stage is reached, however, when the more usual characters of structure, colour and size, can with advantage be brought into use for the final differentiation of the species reduced to the lowest bionomic division.

Whether or not the collector of beetles in the field intends to utilise the fullest possible ecological data himself, it should always be provided by him, if not for his own use then for the advantage of subsequent work upon the specimens in question. This entails the accurate referencing of the notes to the actual whereabouts of the specimens to which they attach so that the materials can be reexamined at any time by future workers.

It has been due solely to the paucity of ecological detail attaching to the specimens which form the bulk of present and earlier collections of beetles that the systematics of the coleoptera have taken the form in which they are presented throughout almost the whole of the systematic literature of the order. In other words, those who have concerned themselves with the erection of classifications, have in the past, had little else apart from the specimens themselves, upon which to base their views, and thus the nature of the actual structure of the anatomical divisions of the insect has become the comparison index for the assessment of evolutionary relationships

We can perhaps gain here a glimpse of the additional value to the advancement of natural science which may follow from the above suggested ecological approach, for in possession of so greately extended initial data intimately concerning the beetles studied, it would be strange if the conclusions we should then be in a position to draw upon the mode of life of the various species and the evolution of the order were not of much greater significance to us than heretofore.

(to be continued)

AMPHIZOID COLLECTING

By WILLIAM MASON
Cornell University, Ithaca, N. Y.

The Amphizoidae are a small family of aquatic beetles restricted to the boreal zones of our western mountain ranges and western Tibet. They are generally rare in collections but really surprisingly common when one knows their habitat. This summer I had the fortunate experience of finding large numbers of them in northern British Columbia and Yukon Territory. Adults and larvae are both inhabitants of trash that accumulates in eddies and plunge pools of small mountain creeks. The simplest way to catch them is to push handfuls of trash and gravel from about the waterline into the eddy pools. The adults, being exceedingly buoyant, pop to the surface and may easily be picked out, while the larvae sink slowly toward the bottom. It is interesting to note that I developed this technique independently, later discovering the paper by Darlington who used much the same methods twenty years ago.

DARLINGTON P. J., 1929, *Psyche,* 36:383; (Biol.)
VAN DYKE, E. C., 1927, *Pan-Pac. Ent.,* 3:197; (Key, Des.)

MAILING DIFFICULTIES

Volume III, number 1 of the Bulletin was mailed on February 23, 1949. All copies were mailed at once at the same post office. However, the majority of these copies were delayed for nearly a month by the Post Office Department at some distribution center. A check is being made by the Superintendent of Mails, but to date, the Editor has had little satisfaction from that quarter. With this issue there is included a postal card. It would be greatly appreciated if this card was filled in and returned immediately by all subscribers, including institutions. It is doubtful if this poor mail service will occur again, but with your cooperation, we should be able to secure information to prevent this difficulty in the future.

EDITOR

FIFTH SUPPLEMENT CORRIGENDA

The following corrections in spelling are necessary on pages 5 and 6 of the recent "Fifth Supplement to the Leng Catalogue of Coleoptera of American, North of Mexico", by R. E. and R. M. Blackwelder, Mount Vernon, N. Y., 1948. These changes must also be made in my paper, (Jour. N. Y. Ent. Soc., 52: 1-25, 1944), in most cases, but not in all. Some of the changes must be made in the original catalogue also.

In the following list, the first spelling is as it appears in the catalogue, the second, the correct spelling as given in the original description.

a. kraulwur*in*i Hatch	a. krautwur*m*i Hatch
sul*ac*tus Fisch.	sul*ca*tus Fisch.
lu*m*ulatus Gistel	lu*n*ulatus Gistel
requiscator Gistel	requi*e*scator Gistel
a. nearticus Hatch	a. near*c*ticus Hatch
a. oregonesis Hatch	a. oregone*n*sis Hatch
a. kadjakenis Port.	a. kadjaken*s*is Port.
tar*d*us Mannh. is correct here, but wrong in previous supplements.	
pollintor Mannh.	pollin*c*tor Mann.
a. sitkensis Hatch	a. sitken*en*sis Hatch
a. specious Schultze	a. specio*s*us Schulze
a. fassifer Reitt.	a. fas*c*ifera Reitt.
guttula is correct here, but incorrect in previous supplemnts.	
hecate Bland.	hecate Bland, and is also incorrect in previous supplements.
a. discontinus Hatch	a. discontinu*u*s Hatch
disci*o*collis Brulle	discicollis Brulle
a. brunnipenis Hatch	a*cc*. brunnipen*n*is Hatch
a. bicolorata Hatch	a*cc*. bicolorata Hatch

ROSS H. ARNETT, JR.
Bureau of Entomology and Plant Quarantine, U. S. D. A.

NEW BEETLE RECORDS FOR FLORIDA

By EDWARD A. CHAPIN
U. S. National Museum, Washington, D. C.

During a few days in January, 1949, while at Key West, Florida, Dr. Titus Ulke collected several beetles. Among them were two specimens of *Ulosonia tricornis* Castelnau (Tenezrionidae), a species originally described from the Antilles and since reported from Central America, Mexico and Texas. He also took two specimens of *Cycloneda sanguinea limbifer* Casey (Coccinellidae), the West Indian subspecies of this widely distributed species. I know of no previous record of the form from the United States.

BRACHYACANTHA DENTIPES (FAB.) IN CUBA (COCCINELLIDAE, COLEOPTERA)

By WM. C. STEHR
Ohio University, Athens, Ohio

Brachyacantha dentipes (Fab.) and its subspecies and varieties are rather widespread in many parts of the United States and Mexico but I know of no records for it from Cuba. Leng does not list it from Cuba in his monograph on *Brachyacantha* nor does Blackwelder give records for the West Indies in his Check-list of the Coleoptera of Latin America. In a small lot of *Coccinellidae* recently sent me by Dr. H. F. Strohecker of the University of Miami, Coral Gables, Florida, there were two females of this species bearing the following data:

S. Vincente, Cuba: VI/'48.

These specimens are closer to the typical form of *B. dentipes* than to any of its variants. The light-colored fascia are a trifle narrower than on the average typical *dentipes* but do not approach the reduction of fascia in its variants.

NOTICE

Plans are under way for a formal organization of Coleopterists. A primary committee has been selected by the Editor to consider methods for organization. A report of this committee will be announced with a future issue. Interested parties are invited to send suggestions to the Editor.

This organization will have the primary aim of advancing the study of Coleoptera throughout the world by means of publication or providing for the publication of information on all phases of the study, with emphesis on the needs of beginners and amateurs, balanced by provisions for the circulation of research studies.

EDITOR

NOTES ON GERMAN AND AUSTRIAN ENTOMOLOGY

By H. KLAPPERICH
Bonn, Germany

The Coleoptera collection of the Bayerische Staatssammlung, Munchen, Germany, was evacuated during the war. All of the museum buildings were destroyed by a great fire after an air-raid in April, 1944. However, only a small part of the Coleoptera collections was damaged. Parts of the collections of Josef Daniel and Clemens Muller were lost.

The collections of Haag-Rutenberg, v. Ceydlitz, Ertl, Carl Daniel, A. Schuster, the types of Perty, and the Dytiscidae collection of A. Zimmerman were not damaged. The library of the Entomological Department was entirely saved. This department has now established itself at the "Schloss Nymphenburg, Munchen." The administration of the Zool. Staatssammlung is now at the "Botanical Institut, Munchen 38, Menzingerstr. 13, Germany". This is also the post address of the Entomological Department.

The Naturhistorisches Museum, Stuttgart, (Wurttembergische Naturalien Sammlung) was destroyed completely by bombs during an air-raid. But the greater part of the Coleoptera collections were evacuated and saved. This collection included: The Palearctic collection of Piesbergen, the collection of v. d. Trappen, with the Pienhardt collection, the Zugel collection, the collection of exotic beetles of Gustav Jager, the Dr. Maag collection (beetles of South-west-Africa), the important collection of Lucanidae and Passalidae of Piesbergen, the great Goliathiden collection and the greatest part of the important Cerambycidae collection.

The Scriba (Heilbronn) collection was entirely destroyed.

There follows a partial list of German and Austrian determiners and revisors:

Herzer, A., Dr. (24a) Bad Schwartau, Bismarckstr. 1, Germany, Histeridae of the world.

Haberacker, L., Dipl. Ing., Munchen 2, Ottostr. 3, II, Germany, Dynastidae of the world.

Schein, H., Stadtdirektor, Munchen 25, Implerstr. 60, I, Germany, Cetonidae of the world.

BIBLIOGRAPHIA

Bibliography is the science which treats of books, their materials, authors, typography, editions, dates, subjects, classification, history, etc. It is also the use of classified lists of books on any subject. Although the basic study of these matters is far afield from entomology, there is much in bibliography that can be useful to a science that depends so heavily upon books.

Under this heading it is proposed to bring together the various items which deal with publications. The Coleopterists' Bulletin has already published book reviews and lists of current literature and has offered to publish personal bibliographies when available. In addition to these we hope to include several other forms of bibliographic material, such as tabulations of the dates of works published in parts, lists of articles on specific subjects (subject bibliographies as opposed to author bibliographies referred to above), and any other pertinent material relating to publications rather than to beetles or techniques.

Bibliographic works are absolutely indispensable to the taxonomist and are at least of great interest to all coleopterists. We sometimes forget the extent to which we make use of them, but it is only necessary to recall how often we refer to the Zoological Record, Biological Abstracts, the bibliography in Leng, and the lists of current literature in several journals, and how often we learn of a work of interest to us through a book review or bibliographic reference. The specialist on taxonomy will also make great use of the many specialized bibliographies, various lists of entomologists and their activities, and reference lists to source material of various kinds.

In order to make these introductory remarks of some direct use, a classification of entomological bibliographic material is given here with lists of some of the sources for such information.

I. LISTS OF PUBLICATIONS

1. *Lists of current literature by subject*
   Zoological Record (subject index of recent volumes)
   Biological Abstracts (recent parts)
2. *Lists of current literature by author*

Zoological Record (titles in recent volumes)
Archiv fur Naturgeschichte (recent volumes)
Entomological News (recent numbers)
Revista de Entomologia (recent numbers)

3. *Lists of publications classified by subject*
Zoological Record, 1864 + (subject index)
Bibliographia Zoologica, 1896-1934 (the book form of the Concilium Bibliographicum, published by the Zoologischer Anzeiger)
Zoologischer Anzeiger (see Bibliographia Zoologica)
Concilium Bibliographicum, 1896-1934. (3x5 cards)
Biological Abstracts, 1926 +
Percheron, A. 1837. Bibliographie entomologique, 2 vols., 326 + 376 pp. Paris.
Agassiz, Louis. 1848-1854. Bibliographia zoologiae et geologiae, 4 vols. London.
Carus, J. H., Engelmann, W., and Taschenberg, O. 1846-1923. Bibliotheca Historico-Naturalis, 11 vols. (Covers 1700-1880.)
Sherborn, C. Davies. 1902. Bibliography, *in* Index Animalium, sect. 1 (1758-1800), pp. xi-lix.
Sherborn, C. Davies. 1922. Bibliography, *in* Index Animalium, sect. 2 (1801-1850), pt. 1, pp. i-cxxxi.
Henshaw, Samuel. 1889-1896. Bibliography of American Economic Entomology, parts 1-5. Washington, D. C.
Banks, Nathan. 1898-1905. Bibliography of American Economic Entomology, parts 6-8. Washington, D. C.
Banks, Nathan. 1911. A list of works on North American Entomology, U. S. Dept. Agric., Div. Ento. Bull. No. 81 (n.s.), 118 pp.
Colcord, Mabel. 1917-1942. Index to literature of American Economic Entomology, 6 parts. (Covers 1915 to 1939).
Banks, Nathan. 1917. Index to literature of American Economic Entomology, for 1905-1914.

4. *Lists of publications by authors*
Zoological Record, 1864 + (titles)
Archiv fur Naturgeschichte, 1835 +
Concilium Bibliographicum, 1896-1934 (3x5 cards)
Entomological News, 1890 +

Revista de Entomologia, 1931 +

Catalogue of the Library of the British Museum (Natural History), 8 vols., 1903-1940, 2403 pp. (including 3 supplement vols.)

Percheron, A. 1937. Bibliographie entomologique, 2 vols., 326 + 372 pp. Paris.

Hagen, H. A. 1861-1862. Bibliotheca entomologica, 2 vols., 1079 pp.

Leng, Charles W. 1920. Bibliography of taxonomic Coleopterology of North America (to January 1st, 1919), *in* Catalogue of Coleoptera of America north of Mexico, pp. 367-444. Mt. Vernon, N. Y. (With five supplements, 1919-1947.)

Horn, W. and Schenkling, S. 1928-1929. Index Litteraturae Entomologicae, 4 parts, 1426 pp. ((Covers works up to 1863.)

Musgrave, Anthony. 1932. Bibliography of Australian Entomology 1775-1930, 380 pp. Sydney.

5. *Lists of publications on individual subjects*

(Such as accompany many revisionary works)

Chamberlin, W. J. 1926. Catalogue of the Buprestidae of North America, 289 pp.

Peterson, Alvah. 1937. A manual of entomological equipment and methods, part II, 334 pp. (Bibliography of rearing procedures.)

Hayes, W. P. 1938. Bibliography of keys for the identification of immature insects. Ent. News, vol. 49, pp. 247-251.

6. *Lists of the publications of one organization*

U. S. Dept. of Agriculture (various lists issued by the department)

A list and index of the publications of the United States National Museum (1875-1946.) U. S. Nat. Mus. Bull. 193, 306 pp.

7. *Lists of publications of individual writers*

Soulsby, B. H. 1933. A catalogue of the works of Linnaeus, 246 pp. London [British Buseum (Natural History).]

Hatch, Melville H. 1926. Thomas Lincoln Casey as a Coleopterist. Ent. News, vol. 37, pp. 175-179, 198-202.

Buchanan, L. L. 1935. Thomas Lincoln Casey and the Casey Collection of Coleoptera. Smiths. Misc. Coll., vol. 94, No. 3, pp. 1-15, 1 pl.

8. *Lists of periodicals*

Zoological Record (list of periodicals)

Catalogue of Scientific Papers of the Royal Society of London, 19 vols. 1914-1925.

Agassiz, Louis. 1848. Periodicals, *in* Bibliographia zoologiae et geologiae, vol. 1, pp. 1-85. London.

Scudder, Samuel H. 1870. Catalogue of scientific serials. . . 1633-1876. Libr. Harvard Univ., Spec. Pub. No. 1, 358 pp.

Bolton, Henry C. 1897. A catalogue of scientific and technical periodicals. 1665-1895. 1247 pp. Washington, D. C.

Claassen, Evelyn S. 1945. An annotated check-list of the more important entomological periodicals. Ann. Ent. Soc. America, vol. 38, pp. 403-411.

Chamberlin, W. J. 1946. List of serial publications on entomology, *in* Entomological Nomenclature and Literature, pp. 77-94. Ann Arbor, Mich.

Bowerman, Elizabeth G. 1947. Union List of Technical Periodicals. Third edition, 285 pp. New York.

II. REVIEWS

Biological Abstracts, 1926 +

Various journals, such as Ann. Ent. Soc. America, Deutsche Ent. Zeitschr., Wienter Ent. Zeitung.

III. LISTS OF WORKERS AND THEIR ACTIVITIES

1. *Coleopterists*

Carpenter, M. M. 1945. Bibliography of Biographies of Entomologists. American Midland Nat., vol. 33, pp. 1-116.

Minerva, Jahrbuch der gelehrten Welt. Berlin.

The Naturalists' Directory.

Lists of members of entomological societies, published in various periodicals.

The Coleopterists' Bulletin.

2. *Collections*

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V. WORKS ABOUT PUBLICATIONS

Jl. Soc. Bibliography of Nat. Hist. 1936 +

Sherborn, C. Davies. (Various papers)

Contributions to any of these subjects will be welcomed for this department. Please send manuscripts and correspondence to Dr. R. E. Blackwelder, U. S. National Museum, Washington 25, D. C.

R. E. B.

COLEOPTERORUM CATALOGUS SUPPLEMENTA PROGRESS REPORT

By W. D. HINCKS
Manchester Museum, England

All working coleopterists, I think, will be unanimous in their good wishes and support for the present undertaking. Whatever shortcomings may have been evident, occasionally, in parts of the Junk-Schenkling COLEOPTERORUM CATALOGUS (and all catalogues suffer from the same inherent defects) there can be no doubt that its publication, over a period of thirty years (1910-40), proved an immense stimulus to the progress of coleopterology, placing in the hands of students of the order their most valued tool.

It would be unthinkable that the new generation of coleopterists could allow such a stupendous achievement to fall into desuetude. Yet so great was the impetus it gave that already many of the earlier parts of the CATALOGUS are now quite out of date and unsuited to the needs of the modern student. But alas, the years have taken a very heavy toll of the coleopterists, many of them great names in systematic entomology, whose labours provided us with this great work. Few indeed remain to produce supplements to their work—many have passed on, handing on to new runners the great Olympic torch of coleopterology, received by them from the hands of an earlier relay. We who come after cannot fail to run in such a race! But the war-years have depleted our ranks; scattered our adherents, compelled others to turn to different tasks and pursuits, broken our communications, and made it difficult to gain a knowledge of the work and interests of the newer coleopterists.

The Editor is anxious to build up a strong team and would welcome therefore news from specialists who are interested in the many families not yet allocated. The advantages of a work of this kind to coleopterology can only accrue from the willing cooperation of many specialists whose desire for the progress of their science is paramount.

During the past year some progress has been made and the Supplements are already on a practical footing. Several short parts are already in the printers' hands, and the following list sets out those so far promised. Several other families are under discussion but negotiations not being concluded at the time of writing these are not included.

Finally it is an aim of the Editor to foster and expand the international character of this work and the fullest cooperation of all coleopterists is sought whatever their nationality.

PARTS IN PREPARATION:

Pars 1. Rhysodidae (Editio secunda): W. H. HINCKS (Manchester).
4. 44. Scolytidae (Ipidae), Coptonotidae, Platytarsilidae, Platypodidae (Editio secunda); K. E. SCHEDL (Lienz).
5. Cupedidae, Paussidae (Editio secunda): E. JANSSENS (Brussels).
6. Curculionidae: Apioninae: H. WAGNER (Berlin).
8. Lucanidae (Edition secunda): B. BENESH (North Chicago).
14. Hylophilidae: M. PIC (Les Guerreaux par Saint-Agnan).
17. Dryopidae, Cyathoceridae, Georyssidae, Heteroceridae: H. E. HINTON (London).
20, 38, 42, 43, 46, 90. Scarabaeidae (Coprophaga): A. JANSSENS (Brussels) and R. PAULIAN (Tananarive).
21. Gyrinidae (Editio secunda): G. OCHS (Dachau).
23. Cleridae (Editio secunda): J. B. CORPORAAL (Amsterdam).
26. Scraptiidae, Pedilidae: M. PIC.
33. (part) Chelonariidae (Editio secunda): A. MEQUIGNON (Paris).
34. Erotylidae, Helotidae: K. DELKESKAMP (Berlin).
39. 52. Cerambycidae; Prioninae, Cerambycinae: E. F. GILMOUR (London).
45, 47, 49, 50. Scarabaeidae: Melolonthinae: E. B. BRITTON (London).
51. (part) Chrysomelidae Donaciinae: H. GOECKE (Krafeld).
51. (part) Chrysomelidae: Criocerinae: E. HEINZE (Berlin).
56. Byturidae, Nitidulidae: J. E. DIBB (Nottingham).
60., 95. Silphidae: R. JEANNEL (Paris) and M. H. HATCH (Seattle).
61. Rhizophagidae: A. MEQUIGNON.
62. Chrysomelidae: Cassidinae: W. D. HINCKS.
65. Oedemeridae: R. H. ARNETT, JR. (Washington)
71. Dytiscidae, Haliplidae, Hygrobiidae, Amphizoidae: J. BALFOUR-BROWNE (London).
78. Chrysomelidae: Galerucinae: W. D. HINCKS.
79. Hydrophilidae: J. BALFOUR-BROWNE.
84, 111, 132, 143, 152, 157. Buprestidae: J. OBENBERGER (Prague).
100. Languriidae: A. VILLIERS (Dakar).

102. Anthribidae: P. WOLFRUM (Ohrdruf).
105. Leiodidae, Clambidae: M. H. HATCH.
110, 139, 141, 144, 158, 167. Curculionidae (part): E. VOSS (Oesede).
142. Passalidae: W. D. HINCKS and J. R. DIBB.
156. Scarabaeidae: Dynastinae: A. JANSSENS.
159. Malachiidae: A. EVERS (Krefeld).
165. Cantharidae: K. DELKESKAMP.

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

HISTERIDAE—Can offer local material in nearly all families for Histeridae. DAVID VERITY, 690 Cuprien Way, Laguna Beach, Calif.

PSELAPHIDAE—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. THEO. TELSCH, 158 W. Spencer St., Philadelphia 20, Pa.

PASSALIDAE—of the world, revising and will determine material from any part of the world. Can offer several families in exchange. W. D. HINCKS, Department of Entomology, Manchester Museum, The University, Manchester 13, England.

OEDEMERIDAE—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

CARABIDAE—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

LITERATURE FOR SALE

The Entomological Society of Washington is offering for sale sets of unbound papers on Coleoptera. The papers were published in the Proceedings of the Society between 1892 and 1930. Each set contains 57 papers or more (the first 10 sets contain 70 to 74 papers) with at least 300 pages and approximately 30 plates or text figures. Nine of the papers treat larvae of Coleoptera. The principal authors are Schwarz, Fisher, Barber and Pierce. Price: $5.25, prepaid. Order from: Corresponding Secretary, Entomological Society of Washington, U. S. National Museum, Washington 25, D. C.

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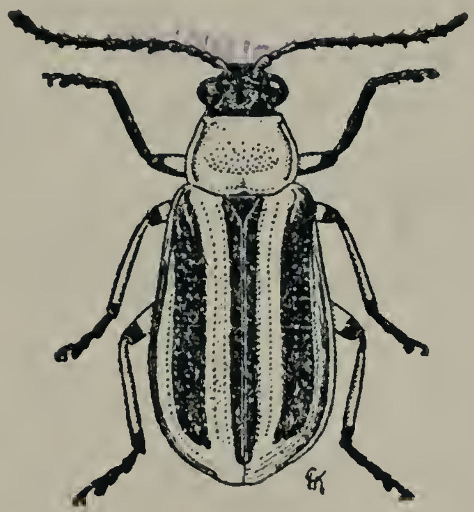

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NAT. HIST.

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THE COLEOPTERISTS' BULLETIN

The Colepterists' Bulletin is published bimonthly. It is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

Manuscripts should be prepared to conform to the style used in the Bulletin and to announcements of style therein. They should be typewritten, double-spaced.

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Division of Insects, U. S. National Museum,
Washington 25, D. C.

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THE COLEOPTERISTS' BULLETIN

Volume III 1949 Number 3

NOTES ON THE PREPARATION OF CATALOGS

By R. E. Blackwelder
U. S. National Museum

The problem of making certain that we have adequate taxonomic aids in the form of published catalogs appears to be of sufficient interest to justify some comments on the article by La Rivers entitled "Let George Do It." There may be ways for American coleopterists to improve on the present situation, but only careful consideration and discussion of the underlying needs and the factors controlling response to them will lead to the best solution. It would be a mistake, however, to fail to realize that thought and discussion has been given to it for many years. The publication of the Fifth Supplement to Leng did not result from this consideration. In fact, it was not contemplated in the most favored plan. And yet, if it emphasizes the inadequacy of the existing situation, it should serve to stimulate a direct and basic attack on the problem. Although Dr. La Rivers' discussion is put forth as a contribution to this subject, certain statements therein appear to be based on misconceptions.

In the matter of systematic catalogs and checklists, there seem to be several fundamental facts that may be overlooked. (1) Methods of cataloging are generally not taught but must be learned by experience and the study of previous works. (2) Only a small percentage of taxonomists have the temperament to complete the preparation of catalogs. (3) Uniform cooperation of more than a few specialists cannot be obtained in actual practice. (4) The large majority of scientific periodicals will not undertake the publication of a substantial catalog. (5) Catalog printing is classed both as highly technical and as tabular work, resulting in unusually high costs.

Having been interested in catalogs as such for many years, I have accumulated some information and some impressions about them that may be pertinent. In the course of my work I have examined several hundred catalogs and checklists in many groups of animals, with the direct intention of determining the advantages and the faults of each type as well as the methods available for each purpose. At least fifty of these have been examined in great detail. For example, every one of the more than 25,000 pages of text in the 170 parts of the Coleopterorum Catalogus was examined in the course of one project, and on thousands of these pages every entry was examined. At the same time all available information relating to the publication of the work was collected and tabulated. Dozens of smaller lists have been treated in similar detail.

It is my conclusion that nearly all catalogs (including all those on Coleoptera) have been a compromise with what was actually needed, because of lack of time, personnel, or finances. In many cases, furthermore, there is no evidence that the actual needs were analyzed before deciding on the nature of the projected work. The fact of compromise because of necessity is no cause for criticism, but failure to determine the nature of the existing need and to fill it as well as circumstances will permit is a serious defect. Catalogs have been published at inappropriate times; some have failed to incorporate essential features that could have been used; others have employed features that were not worth the trouble; some have stressed accuracy beyond reason, resulting in delay or abandonment; some have been carelessly prepared and carelessly published.

The ideal catalog would be one which gives all the essential features with many of the desirable extra ones, is highly accurate, is kept up to date, and is readily available. It is essential, before starting to produce such a work, that the exact needs and the desirable features be known and evaluated, that the limitations of time, personnel, finances, and availability of source material be determined, and that it be determined that the interaction of these two will make it possible to produce a suitable work.

While it is of course not true that catalogs are always prepared by the best-fitted person, or that the compiler is well suited to th work, it is true that by no means all taxonomists can meet the requirements of a good cataloger, among which are: having access to source material, having the necessary time and facilities, having sufficient knowledge of the subject, and having a publication outlet. And above all he must be able and anxious to learn how to catalog effectively.

During the first two decades of this century, while a local group of coleopterists was helping Mr. Leng prepare his excellent catalog, another man was preparing a catalog of North American Coleoptera. He worked at it for many, many years, trying to perfect it as regards original sources. But he did not have the temperament that would have enabled him to complete such a work in a reasonable time. He gave up the project a few years ago, leaving the work far from complete and practically useless, making his life work almost a complete loss to science.

It is stated by Dr. La Rivers that there are "a rather large number" of journals that would be willing to publish such a catalog as the Leng supplements (100 pages, for example). This is a very interesting statement, for it is in direct contradiction to the experience of the past. There are about 17 regular entomological journals in North America. Of these, not over four have ever contained a paper of 100 pages, and only two make a practice of publishing long rather than short papers. Neither of these two has ever published a checklist, and it is understood that neither will consider doing so. As a matter of fact, it can be confidently stated that in general no entomological journal in the world looks with favor on checklists, catalogs, or supplements. To have been published in one of these, the Leng supplements would have had to be cut to the absolute minimum —a list of new names alone.

However, Dr. La Rivers does not restrict his statement to entomological journals. On this basis there is probably one additional American journal that might accept such a manuscript. If we consider also the institutions that publish separate works (sometimes in definite series), we find quite a different picture. Several agencies, both governmental and private, have published and will still consider for publication, such catalogs. Most of these will consider only manuscripts prepared by their own staff, and all have insufficient publication funds. Even in this class, which is practically the only outlet other than private publication, it is not at all easy to obtain the publication of a catalog. It would normally be impossible to obtain the publication here of a supplement to a work published elsewhere.

The major point made by Dr. La Rivers is not in connection with publication, if I understand him correctly, but with preparation. He advocates cooperation of many specialists to produce the needed new catalog or supplements, and he hints at "tremendous and obvious" advantages "in time saved and accuracy achieved." These generalizations seem to have been made more in hope than in knowledge.

First, let us look at the idea of cooperation of respective specialists. Dr. La Rivers states that, "It is a common device of the European taxonomist." I do not know the basis for this remark, but it is my experience that such cooperation is extremely rare. The apparent examples of the Biologia, the Genera Insectorum, the Fauna of British India, are not appropriate, since they are merely collections of separate monographs under one title and are not integrated parts of one work like a catalog. In catalogs, there are few or none that are the result of cooperation of more than two (or rarely as many as four) workers. The outstanding apparent exception to this is the Coleopterorum Catalogus to which 60 authors contributed. A long acquaintance with this work shows, however, that there is very little integration of the parts, very little correspondence in the intentions of the different authors as to the nature of the included material, and no single level of accuracy. In using the Col. Cat. each part must be appraised separately. I am unable to name a single work comparable to the Leng Catalogue which is the work of a series of specialists who contributed individual sections.

In addition to this, there are two further implications that seem erroneous. These are that time can be saved and accuracy increased by cooperation. The first must have had reference to more frequent appearance of catalogs and supplements rather than actual time saved. Supplements might well appear oftener than they do, but it would be very difficult to publish any supplement much more promptly than the Fourth and Fifth. Each of these was in the hands of workers less than six months after the last works included were published. This is at least as short as the usual time lapse in publication in the average journal, *after the manuscript is finished and submitted!*

An increase in accuracy could be achieved by arranging to have more specialists review the manuscript. In the past about three have seen it. This could only be done at a considerable increase in labor and a great delay. The experience of the Coleopterorum Catalogus shows that the contribution of parts by many specialists will result in increase in accuracy in some parts and a decrease in others. But it will also result in a general decrease in coherence and uniformity.

The most important consideration about this cooperation proposal was not apparent to Dr. La Rivers, else he would not have made such a proposal at all. This is that it is impossible to get cooperation throughout the order. Someone must do the work on the unassigned families, and it has been demonstrated that this work would be almost as great as the whole job. Searching the literature for a few families is hardly less time-consuming than doing it for all, and of course some one has to edit the entire manuscript in great detail, prepare the bibliography and index, and manage the publication. The great work of obtaining the cooperation, getting the parts together in time, and integrating them still falls on one person and more than offsets the other saving of his time.

Two large recent catalogs have both clearly demonstrated the great difficulties of this cooperative approach. But this does not mean that improvement cannot be made in the present system. Widespread circulation of the manuscript before publication might help considerably, but it would involve a delay of not less than six months.

Space will not permit me to take up in detail the statements made by Dr. La Rivers, although I find myself in disagreement with most of his generalizations. I would like to ask, however, because of a life-long interest in card-indexing, for the name of any specialist who has a card catalog that is up to date and in such a form that it can be directly transcribed into a supplement manuscript. I believe that this is quite possible, but I have never found anyone who had one, and my own file of nearly 500,000 cards on Staphylinidae could not be used in this manner.

I cannot agree that we will gain any advantage by trying other solutions to this problem if they are all ones which have known faults that more than offset their advantages. I believe that Dr. La Rivers should not be too concerned over the fact that one taxonomist is willing to spend part of his time at a job that gives some help to many others, instead of sticking to the study of an obscure group in which few are interested. His own willingness to make use of catalogs is proof that the compiler's time was not wasted.

APHODIUS VESTIARIUS HORN, A SYNONYM OF APHODIUS CUNICULUS CHEVROLAT

By O. L. CARTWRIGHT
United States National Museum

Examination of specimens of *Aphodius vestiarius* Horn and *A. cuniculus* Chevrolat in the collections of the United States National Museum lead to the conclusion that these two species are identical and that *vestiarius* must be placed in synonomy. Dr. George Horn described *vestiarius* from near St. Augustine, Florida in 1870 (Trans. Am. Ent. Soc., vol. III, p. 121); Chevrolat described *cuniculus* from Cuba in 1864 (Ann. Soc. Ent. France, s.4, vol. 4, p. 411). The species is widely distributed in the West Indies and was mentioned from 19 of these islands by Chapin in 1940. Bates in Biologia Centrali-Americana lists Mexico, Guatemala, and Nicaragua also.

Aphodius cuniculus has been seen from the following localities in the United States: Texas: Harrisburg, Galveston, Macdona, Victoria, Devil's River, and Brownsville; Alabama: Escambia Co.; Florida: Haw Creek, Indian River, Pensacola, Capron, Centreville, Lake Harney, Sarasota, Lake Worth, and Miami; Georgia: Lyons, Okefenokee Swamp, and Savannah; and South Carolina: Beaufort, Tillman, Yemassee, and Seabrooks Island.

THE EGG-BALL OF DELTOCHILUM GIBBOSUM (Fab.)

By O. L. CARTWRIGHT
United States National Museum

Several years ago while using rotting chicken feathers as bait for *Trox* in the mountains of South Carolina, the writer was surprised and pleased to take several specimens of *Deltochilum gibbosum* along with the various *Trox* and other insects. Some time later the same bait, which had been placed beside a log near the trail, was visited again and in searching under the leaves an egg-ball of *Deltochilum* was found tucked in close under the log. The ball was the size and shape of a Narcissus bulb and, in fact, had exactly the same appearance. It measured 1½ inches in diameter and two inches down through the neck. The ball contained a pupa of the beetle and closely packed fine downlike feathers. The outside was covered with soil and dead leaves, the leaves being so closely and tightly wrapped as to give it the appearance of a plant bulb. The following season a second pear-shaped egg-ball which contained a large yellowish egg in the smaller end was found near another pile of feathers. It had the center composed of a grayish mass of closely firmly packed downlike feathers, surrounded by a layer of claylike soil, and an outside covering of pieces of dead leaves.

Deltochilum gibbosum has been collected in Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. In South Carolina it occurs throughout the State, has been collected from May 5 to August 30, and has been taken at various dead animals, dog hair, and human excrement as well as chicken feathers. It was observed rolling a large ball of excrement in the same manner as by Canthon of various species.

The above brief note is presented with the hope that someone in the Southern States where *Deltochilum gibbosum* is found will work out the life history of this our largest "tumble-bug." It is hoped especially that its larva will be obtained and preserved. The United States National Museum would like to obtain such larvae since the immature stages of Deltochilum are unknown.

BEETLE ECOLOGY (5)

By John R. Dibb, F.R.E.S.
Wollaton, Nottingham

(Concluded from vol. III, p. 21)

Reference to our "Schedule of Field Data", providing it contains the information called for under the various headings, will give to the coleopterist a number of possible bases upon which to build his bionomic classification. For the purpose of illustration we are confining these notes to that portion of the schedule which deals with habitat, both particular and general. For example, should we find a species of the Carabid genus *Bembidion* running upon moist mud which forms the bank of a mountain stream, the particular habitat of the specimen in question is moist mud, with description of its composition, and the general habitat—the banks of a mountain stream, etc.

It is not possible within the compass of these short notes to give a comprehensive list of adult beetle habitats and it will be evident that it is at present the beetle ecologist's purpose to extend the already known habitats of that proposition of the species investigated to include more and more of the species until all indigenus forms are covered and in so doing, add to our knowledge of natural habitats.

In order to place each group of species which have a common habitat within a single definition, the different habitats are defined by descriptive terms, all of which have the common ending—ICOLES, e.g. the species associated with dung, STERCORICOLES, those with flowing waters, FLUVICOLES, and so on. A broad division of habitats can be made as follows:

A. On or in Soil ....SOLICOLES
B. On or attached to Plants.....................PHYTICOLES
C. Associated with Animals (including man)
ANIMALICOLES
D. In Water ....AQUATICOLES
E. At high Altitudes ....ALTICOLES

Each of the above are further divisible into lower habitat-group categories which can be illustrated by taking division B above.

DIVISION B—PHYTICOLES

1. On trunks of trees ....TRUNCICOLES
2. In or under the bark of trees ....CORTICICOLES
3. In the wood of tree trunks and boughs
LIGNICOLES

5. On stems and fronds of flowering plants, grasses and ferns ....HERBICOLES
6. On flowers and blossoms................FLORICOLES
7. Upon plant roots ....RADICOLES
8. On decaying vegetables and flood refuse ............................DETRITICOLES
9. On plant galls ....GALLICOLES
10. In moss ....MUSCICOLES
11. In fruits ....FRUCTICOLES
12. On or in fungi ....FUNGICOLES

From the foregoing it will be realised that this method of classification through the introduction of bionomic divisions lends itself to great extension and development as further ecological information comes to hand, for the above mentioned primary and secondary habitat group divisions are themselves capable of being added to and expanded as our knowledge of the subject widens. When we consider that similarly extended methods of bionomic classification can be worked out in connection with behaviour, food preferences, soil constitution, conditions relating to shelter, temperature and humidity to mention but a portion of the factors involved, we begin to appreciate the wide field of investigation opening up from the new approach.

In investigating the beetle fauna of a particular local area upon the ecological basis, we arrive at a stage when the species within that area are almost, if not all recorded and further, every species has been allocated from the schedule of field data to its lowest named bionomic division or habitat group. The specimens falling within each of the above mentioned divisions can then be segregated each batch representing an area.

It is at this stage that we can, with advantage, utilize the taxonomic characters to separate the species, and we shall find that in addition to broadening our knowledge of the living beetles, this ecological approach will, to a large extent, reduce the difficulties of determining the species. The reason for the simplification of the work of determination is due to the comparatively small number of species which have to be identified within each bionomic division. For illustration we take the case of the fairly extensive Nitidulid genus *Epuraea.* Some species of the genus are known to live in flowers and blossoms, and others in fungi. To the former type we apply the bionomic term Floricoles and to the latter Fungicoles. Now a key to the separation of the species based solely upon structural characters woud be required to include all the species of the genus occuring in the zoogeographical area and would necessarily be of considerable complexity owing to the close relationships of the component species of this genus. When we know, however, that the natural habitat of say one-third of the species within the genus *Epuraea* is fungus, and also that the specimen we have for determination had been found in that pabulum, our task would be at once reduced by two-thirds through knowledge of the single fact pertaining to habitat alone.

We must remember though, that it is not until the fathering of ecological detail reaches the stage where we possess the required information attaching to a very large proportion of the representative species within each genus that the portion is reached when a really big step forward can be made through bringing into use the expanding knowledge of the bionomics of the beetles. There are firm grounds for the belief, however, that the old methods of species determination have commenced to change and that in due course they will embrace as much bionomic data provided by the ecologist in the field, as taxonomic, provided by the systematist alone.

In a previous paper the writer referred to the Eco-taxonomic approach to the study of beetles which is the method which has been a little more extensively discussed in the foregoing notes, and it is suggested that the term Eco-taxonomy is the appropriate one for the subject of classification and determination through the utilization of both taxonomic and ecological data.

The trend is thus developing to wed the ecological approach to the taxonomic, which should appeal to all ecologists by virtue of the inherent nature of the principles of ecology. Such a synthesis of systematic coleopterology and ecology can only result in a more valuable contribution to Natural Science as a whole.

NEWS

Professor Melville H. Hatch of the University of Washington has been spending most of his research time on his "Handbook of the Coleoptera of the Pacific Northwest." He has completed the preliminary manuscript of Part 1, suborder Adephaga—over 600 species—and hopes to have it checked and ready for publication by winter.

—*From* Dept. Zool. Newsletter.

Dr. Elwood C. Zimmerman of Hawaii spent a few days in early June at the U. S. National Museum. Dr. Zimmerman is enroute to the British Museum for the purpose of studying beetles types. He plans to spend a year and a half in England.

Bibliographia

STUDIES ON THE DATES OF BOOKS ON COLEOPTERA, I

BY RICHARD E. BLACKWELDER
U. S. National Museum

In the system of nomenclature which we use in naming animals, one of the basic principles is priority of publication. In order to determine priority we must know the date of publication of every name proposed. In many cases there is little difficulty in determining the date of publication of books or articles, but there are certain pitfalls to be guarded against. In other cases, erroneous dates have been cited for many years, leading to erroneous conclusions as to priority of names. In addition to this there are still works of which the actual dates have never been established.

Many studies have been made of the dates of certain entomological works. Some of these have been published, but some remain as manuscript notes or as annotations of the respective works. Many of the published studies are in relatively inaccessible places and are not well known to working coleopterists. In the present studies there will be presented summaries of the conclusions concerning the dates of works on Coleoptera, some from published analyses, some from unpublished notes by various workers, and some from evidence discovered by the writer.

No definite arrangement is possible, since it is planned to present the results of new studies as they are made. In each article the works will be in alphabetical order by author, with an index to authors at the end of each volume.

It is not intended in most cases to present the basic evidence used to determine the dates. Instead the conclusions will be tabulated to facilitate reference by the user. Reference will be made to the source of information, where further details can be obtained by anyone interested. When no such reference is given, the conclusions are from internal evidence.

CURTIS, JOHN. 1824-1840. British Entomology, 16 volumes, 770 colored plates. London. This elaborate work was published in 192 parts of four (or at first five) plates each, with one or more pages of text accompanying each plate. Each plate bears the date of publication; these dates are believed to be accurate in every case (except as listed below). Although originally bound into 16 volumes, after completion the work was frequently rebound in systematic order (instead of numerical) in eight volumes. Five years after starting publication, it was found that the edition was too small. The early parts (1-30) were then reprinted. But certain alterations were made in both plates and text, so that in reality a second edition was produced. Plates of this second edition are often mixed in with the plates of the first, but the dates inscribed on them are erroneous. Recognition of the reprinted plates is therefore important. For discussion of these editions and the changes made, see Blackwelder, The Dates and Editions of Curtis' British Entomology, Smiths. Misc. Coll., vol. 107, No. 5, pp. 1-27, 19 facsimiles.

Edition 1, original numerical arrangement.

Volume	Plates	Date	Volume	Plates	Date
1	1-50	1824	10	434-481	1833
2	51-98	1825	11	482-529	1834
3	99-146	1826	12	530-577	1835
4	147-194	1827	13	578-625	1836
5	195-241	1828	14	626-673	1837
6	242-289	1829	15	722-769	1838
7	290-337	1830	16	722-769	1839
8	338-385	1831		Indexes	1840
9	386-433	1832			

Edition 1, systematic arrangement.

1 Coleoptera. Part 1.
2 Coleoptera. Part 2.
3. Dermaptera, Dictyoptera, Orthoptera, Strepsiptera, Hymenoptera, Part 1.
4 Hymenoptera, Part 2, Neuroptera, Trichoptera.
5 Lepidoptera, Part 1.
6 Lepidoptera, Part 2.
7 Homoptera, Hemiptera, Aphaniptera.
8 Diptera, Omaloptera.

Edition 2.

Part	Plates	Date	Part	Plates	Date
1	1-5	1829	6	23-26	1839
2	6-10	1830	7	27-30	1840
3	11-14	1834	8	31-34	1840
4	15-18	1835	9-30	35-122	1840
5	19-22	1835			

DEJEAN, J. A. 1802-1837. Catalogue des Coleopteres de la collection d'Auguste Dejean. Paris. Four editions of this famous catalog (with slight variations in the title) were published. The destruction by fire of the entire edition of fascicle 5 of the "1833" edition resulted in considerable confusion about the dates of some parts. An acceptable explanation of the anomalies and resulting conclusions as to the dates were given by Barber and Bridwell, Dejean catalogue names (Coleoptera), Bull. Brooklyn Ent. Soc., vol. 35, pp. 1-12, 1940.

(1802 edition) 11 pp. 1802.
(1st edition) 136 pp. 1821.

2nd edition Fasc.	1	pp. 1-96	March 1833
	2	pp. 97-176	May 1833
	3	pp. 177-256	June 1834
	4	pp. 257-360	1835
	5	pp. 361-442	June 1837
3rd edition Livr.	1-4	pp 1-384	Jan-Feb 1836
	5	pp. 385-503	May 1837

HEYNE, A. and TASCHENBERG, O. 1893-1907. Die exotischen Kafer in Wort und Bild, 262 pp. 39 pls. Leipzig. For details, see Blackwelder, An Adventure in Biblio-Chronology, Washington Acad. Sci., vol. 39, in press.

Lief.	Pages	Plates	Date
1	1-6	1,16	1893
2	7-10	2,17	1894
3/4	11-26	3,4,6,7	1895
5	27-34	5,9	1896
6	35-42	8,10	1896
7/8	43-58	11,12,13,14	1897
9	59-6	15,19	1900
10	67-74	18,20	1901
11/12	75-90	22,23,33,35	1902
13/14	91-106	21,21bis,24,25	1903
15/16	107-122	26,27,28,29	1904
17/18	123-138	30,31	1904
19/20	139-170	32,34	1905
21/22	171-194	36,37	1906
23/24	195-218	38,39	1907
25/26	219-262	....	1907
27	Index, title, preface		1907

MOTSCHULSKY, V. 1853-1862. Etudes entomologiques, 11 parts Helsingfors. Griffin in Ann. Mag. Nat. Hist., ser. 10, vol. 17, pp. 256-257, 1936, records the dates on which this work was received at the Soc. Imp. Nat. Moscou. These do not necessarily contradict the title-page date.

PART NO.	PAGES	HEADING DATE	TITLE DATE	RECEIVED
1	1-80	1852	1853	X-29-1853
2	1-56	1853	1854	XI-18-1854
3	1-69	1854	1854	XI-18-1854
4	1-84	1855	1855	XII-28-1855
5	1-88	1856	1856	I-24-1857
6	1-112	1857	1857	IV-24-1858
7	1-192	1858	1858	XII-18-1858
8	1-187	1859	1859	IV-21-1860
9	1-41	1860	1860	X-12-1862
10	1-24	1861	1861	X-11-1862
11	1-55	1862	1862	XII-13-1862

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VOLUME	PAGES	PLATES	DATE
1	1-76	1-5	1827
	77-186	6-9	1828
2	1-112	10-14	1828
	113-200	15	1829
3	1-374	16-19	1830
4	1-366	20-23	1831
	367-413	......	1832
5	1-240	24-26	1832
	241-304	27	1833
	305-368	......	1834
	369-477	......	1835

WESTWOOD, J. O. 1838-1840. An introduction to the modern classification of insects, 2 vols. London.

Vol. 1, pt.	1	pp 1-48	May 1838
	2	49-112	June 1838
	3	113-160	July 1838
	4	161-224	August 1838
	5	225-288	September 1838
	6	289-352	October 1838
	7	353-400	November 1838

8	401-462	December 1838
Vol. 2, pt. 9	pp. 1-128	January 1839
10	129-192	February 1839
11	193-224	March 1839
12	225-256	April 1839
13	257-288	June 1839
14	289-352	November 1839
15	353-400	January 1840
16	401-587	June 1840

Synopsis of the genera of British Insects, 158 pp. (Part of the above work.)

Signature B	pp. 1-16	May 1838
C	17-32	August 1838
D	33-48	September 1838
E	49-64	June 1839
F	65-80	June 1839
G	81-96	January 1840
H	97-112	June 1840
I	113-128	June 1840
K	129-144	June 1840
L	145-158	June 1840

BOOK REVIEW

New edition of Schenk and McMasters, Procedure in Taxonomy. Including a reprint of the International Rules of Zoological Nomenclature with Summaries of Opinions rendered to the present date. Revised by A. M. Keen and S. W. Muller. Stanford University Press, 93 pp. 1948. $2.50.

It is scarcely necessary to comment on this needed new edition of a very useful book. The revision is largely in the form of annotations to the original text and helps to remove some of the inadequacies of the original.

The subtitle is somewhat misleading in this edition since the official summaries of Opinions 134 to 194 are *not* given. On page 31 it is explained that this is because these Opinions are copyrighted. The question of whether this material *can* be copyrighted is unsettled, but there is no copyright in the United States on any of the publications of the Commission, despite the published claim.

We recommend this book to all taxonomists. It would be made obsolete by the projected new edition of the (revised) Rules, but that work is not likely to appear in the near future. R. E. B.

BOOK REVIEWS

HOW TO KNOW THE IMMATURE INSECTS, by H. F. Chu, Zoologist, Institute of Zoology, National Academy of Peiping, Peiping, China. 1949. Cloth ($3.00) or spiral ($2.00), 234 pp., 601 figs., Wm. C. Brown Co., Dubuque, Iowa.

This book brings together in one volume most of the more important contributions to the study of immature insects. The introductory sections contain valuable suggestions for collecting and rearing larvae and pupae and for preserving them. Keys are presented which separate the immature stages to order. Keys to families of fifteen orders are given, based on larval or nymphal characters and on pupal characters in so far as this information was available. Pictured-keys have much in their favor and have been used to advantage in this work. However many of the illustrations are habitus figures (very few of which are original although usually redrawn without indication of source), which are not ordinarily suitable for displaying details used in keys. It will be wise to use the keys with caution. Serious errors such as the placing of the Psoini in the Lyctidae and *Myochrous* (at least by inference) in the Chrysomelinae are noted. The more important references to papers on immature insects are listed and will be of interest to those making a serious study of insect taxonomy. The book is recommended for use by those studying or teaching courses on immature insects, the importance of which is becoming increasingly apparent. The volume forms the tenth in the Pictured-Key Nature Series edited and copyrighted by Dr. H. E. Jacques, Department of Biology, Iowa Wesleyan College.

By W. H. ANDERSON

HOW TO KNOW THE INSECTS, (Revised edition), by H. E. Jaques, Wm. C. Brown Co., Dubuque, Iowa, 1947, 205 pp., 411 figs., cloth or spiral binding ($2.50 and $1.50).

This is part of the Pictured-Key Nature books edited by Professor Jaques. An interesting, fully illustrated book for the beginner, with keys to families and an introduction to methods of collecting, mounting and maintaining an insect collection; it is highly recommended for those who wish to get started in the study of insects. It is mentioned here for the benefit of those readers of the Bulletin who, though specializing in Coleoptera, are beginners and wish a handy reference to other groups of insects and technique fundamentals.

ROSS H. ARNETT, JR.

BOOK REVIEW

COLEOPTERA OF TRISTAN DA CUNHA, by Per Brinck. Results of the Norwegian Scientific Expedition to Tristan da Cunha 1937-1938. No. 17: 1-121, 26 text figs., 1 pl. Oslo, Det Norske Videnskaps-Akademi. Price 10 Kr. December, 1948. This important paper deals with the beetle fauna of a group of three islands, Tristan da Cunha, Inaccessible, and Nightingale, lying midway between the tips of South America and Africa, and perhaps the most isolated in the world. It includes the descriptions of new species in Dytiscidae, Ptiliidae, Staphylinidae, a new genus of dytiscid, a key to the genera of the tribe Palaechtini (weevils; 4 new genera, with 2 keys to the 11 new species of one of them, *Tristanodes*). In addition there are sections on the reduction of wings and eyes, distribution of the species, ecology, origin of the fauna, and also a most interesting discussion of the relations between the carnivorous and phytophagous Coleoptera from the Arctic area to the Antarctic. Pages 104-117 contain a subsidiary study, a reclassification of the dytiscid subfamily Colymbetinae, with keys, and the establishment of three new tribes.—HUGH B. LEECH, California Academy of Sciences, San Francisco 18, Calif.

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Vogt, G. B. Five new Buprestidae from south Texas. Ann. Ent. Soc. America, vol. 42, pp. 48-54, 1 pl.

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. DR. A. FOCARILE, JR., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE—7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. DR. A. FOCARILE, JR., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. JOLIVET, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. IRA LA RIVERS, Biology Department, University of Nevada, Reno, Nev.

INSECT BOXES—For sale, 18 x 11¾ x 5 inch insect collection boxes. Pinning composition on each side. White liners on pinning bottoms. Latched and hinged. These are special boxes of which we have but a limited quantity. Sanded but not finished. $4.00 each. BIO METAL ASSOCIATES, Box 346, Beverly Hills, Calif.

HISTERIDAE—Can offer local material in nearly all families for Histeridae. DAVID VERITY, 690 Cuprien Way, Laguna Beach, Calif.

PSELAPHIDAE—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. THEO. TELSCH, 158 W. Spencer St., Philadelphia 20, Pa.

PASSALIDAE—of the world, revising and will determine material from any part of the world. Can offer several families in exchange. W. D. HINCKS, Department of Entomology, Manchester Museum, The University, Manchester 13, England.

OEDEMERIDAE—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

CARABIDAE—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. DARLINGTON, JR., Museum of Comparative Zoology, Cambridge 38, Mass.

LITERATURE FOR SALE

The Entomological Society of Washington is offering for sale sets of unbound papers on Coleoptera. The papers were published in the Proceedings of the Society between 1892 and 1930. Each set contains 57 papers or more (the first 10 sets contain 70 to 74 papers) with at least 300 pages and approximately 30 plates or text figures. Nine of the papers treat larvae of Coleoptera. The principal authors are Schwarz, Fisher, Barber and Pierce. Price: $5.25, prepaid. Order from: Corresponding Secretary, Entomological Society of Washington, U. S. National Museum, Washington 25, D. C.

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THE COLEOPTERISTS' BULLETIN

Volume III 1949 Number 4

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NAT. HIST.

Ross H. Arnett, Jr.
EDITOR

Richard E. Blackwelder
ASSOCIATE EDITOR

William H. Anderson
TREASURER

THE COLEOPTERISTS' BULLETIN

The Coleopterists' Bulletin is published bimonthly. It is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

Manuscripts should be prepared to conform to the style used in the Bulletin and to announcements of style therein. They should be typewritten, double-spaced.

Illustrations will be accepted if suitable and adequate. No charge will be made unless the cost is deemed excessive.

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All other manuscripts and correspondence: Dr. Ross H. Arnett, Jr.
Address any of the above at:

Division of Insects, U. S. National Museum,
Washington 25, D. C.

DATE MAILED: AUGUST 29, 1949

THE COLEOPTERISTS' BULLETIN

Volume III 1949 Number 4

NOTES ON THE GENERA INCLUDED IN THE FAMILY CEBRIONIDAE (COLEOPTERA)

By Ross H. Arnett, Jr.

The family Cebrionidae, as represented in North America north of Mexico, consists of two genera and 17 species, which are restricted to the Southern States. The genus *Selonodon* Latreille 1834 (=*Cebrio* of recent American authors) is the larger, with 12 described species; the remaining five belong in the genus *Scaptolenus* LeConte 1853. In addition to these are six other genera, which are outlined in the following catalogue.

The zoological status of the various species, other than the genotypes and a few well-known old species, is uncertain and will not be considered in detail in this paper.

In trying to discover the proper name for the American species incorrectly included in the genus *Cebrio,* it was found necessary to examine the early literature critically and to find genotype designations or to designate genotypes for all the genera zoologically included in Cebrionidae. A study of the genotypes shows that *Cebrio* itself does not occur in the New World. In addition, several other more or less drastic changes in the nomenclature of the Cebrionidae of the world are necessary. The reasons for these changes are outlined in the comments following the various names in the catalogue below. The acceptable generic name both zoologically and nomenclatorially heads the list in each case, with the various synonyms following.

FAMILY CEBRIONIDAE

CEBRIO OLIVIER

Cebrio Olivier, 1790, Ent. II, no. 30 bis, p. 5.

Genotype: *Cebrio gigas* Fabricius, 1801 (Syst. Eleuth. II, p. 14) [=*Cistela gigas* Fabricius, 1787 (Mant. Ins. I, p. 84, a male from southern Europe); =*Cebrio longicornis* Olivier, 1790 (Ent. II, no. 30 bis, p. 5, a male, which Olivier stated to be a new name for Fabricius' *Cistela gigas*).] Designated by Cuvier, 1849, Règ. Anim., pl. 31, fig. 2 (species figured stated to be type of the genus).

Type locality: Southern Europe.

The genus *Cebrio* was established for two new species, *Cebrio longicornis* (type by synonymy, see above) and *Cebrio brevicornis*

(=*Tenebrio dubius* Rossi). *Cebrio brevicornis* Olivier was stated in the original description to be the same as *Tenebrio dubius* Rossi, 1790 (Fn. Etr., p. 234) from Italy. Fabricius in 1801 (Syst. Eleur. II) treated his *Cistela gigas* as a *Cebrio.* He had previously accepted the Olivier name *Cebrio,* as indicated by his description of *Cebrio ruficollis* from Spain (Ent. Syst. Suppl. 1798, p. 102), a species congeneric with *gigas.*

Hammonia Latreille, 1817, *in* Cuvier, Règ. Anim. III, p. 235.

Genotype: *Cebrio brevicornis* Olivier [=*Tenebrio dubius* Rossi, 1790 (Fn. Etr., p. 234); =*Cebrio dubius* (Rossi)]. Present designation. Two species are listed, but they are of opposite sex.

Type locality: Italy.

This species is congeneric with *Cebrio gigas* Fabricius, 1801.

Tibesia Leach, 1824, Zool. Jour. I, p. 41.

Genotype: *Cebrio ruficollis* Fabricius, 1798 (Ent. Syst. Suppl. p. 102) Monobasic.

Type locality: Spain.

This species is considered to be congeneric with *Cebrio gigas* Fabricius; thus the genus *Tibesia* is a synonym of *Cebrio.*

Cebrio Leach, 1824, Zool. Jour. I, p. 38.

This genus contains three species—*Cebrio promelus* (p. 39), *Cebrio fabricii* (p. 40), and *Cebrio morio* (p. 40). All three are from Europe. The first is stated to be a Latreille manuscript name and a new name for *Cebrio gigas* Fabricius, 1801, according to Leach's citation. Thus it is assumed that Leach's *Cebrio* is the same as *Cebrio* Olivier.

The genus *Cebrio* Olivier contains those species which occur in the area surrounding the Mediterranean Sea. The species listed in the Junk/Schenkling catalogue (Coleopterorum Catalogus, pars 25, 1911), which do not occur in this area, are to be removed from the genus. Other generic names apply to these species.

ANALESTESA LEACH

Analestesa Leach, 1824, Zool. Jour. I, p. 35.

Genotype: *Analestesa testacea* Leach, 1824 l. c. p. 36. Present designation.

Type locality: Unknown.

This genus [=*Analestes* of authors] contains *Cebrio bicolor* Fabricius, and a new species, *testacea* Leach, habitat unknown.

Cebriognathus Chobaut, 1899, Ann. Soc. Ent. Fr., 68, Bul. p. 22.

Genotype: *Cebriognathus disertorum* Chobaut [=*Analestesa testacea* Leach according to Jacobson, 1912 (Rev. Russe Ent., 12, p. 136). Monobasic.

Type locality: Algeria.

By the present designation of *Analestesa testacea* Leach, 1824 as genotype of *Analestesa,* the genus *Analestesa* Leach, 1824 must replace the monotypic genus *Cebriognathus* Chobaut, 1899, as both genera have the same genotype by reason of synonymy.

Analestesa contains one species from Algeria. The *Cebrio bicolor* "Fabricius," which Leach places in this genus, is not the *Cebrio bicolor* Fabricius, 1801, and it is doubtful if it is congeneric with *Analestesa testacea* Leach. It remains unknown.

BRONGNIARTIA LEACH

Brongniartia Leach, 1824, Zool. Jour. I, p. 44.

Genotype: *Brongniartia atra* Leach. Monobasic.

Type locality: Barbary.

Brongniartia atra was considered congeneric with *Cebrio gigas* Fabricius by Chevrolat, 1874 (Ann. Soc. Ent. Fr., ser. 5, vol. 4, p. 422), but was unknown to him, and remains unknown today.

DUMERILIA LEACH

Dumerilia Leach, 1824, Zool. Jour. I, p. 42.

Genotype: *Dumerilia pulchra* Leach. Monobasic.

Type locality: South Africa.

Leptelytron Chevrolat 1874, Ann. Soc. Ent. Fr. ser. 5, vol. 4, p. 530.

Genotype: *Leptelytron fuscus* (Fabricius) [=*Cebrio fuscus* Fabricius, 1792]. Designated by Lucas, 1920, Cat. alph. gen. and subg. Col. orb. terr. tot., pars I, p. 369.

Type locality: Cape of Good Hope.

The genotypes of this genus and *Dumerilia* Leach are congeneric (see notes below).

Trigonoderus Guérin, 1844 (not Gray, 1833, or Westwood, 1829), Icon. Règ. Anim., Ins. p. 43.

Genotype: *Cebrio fuscus* Fabricius, 1792, Ent. Syst. I, 2, p. 41. Monobasic.

Type locality: Cape of Good Hope.

This genus and *Leptelytron* Chevrolat, 1874 are isogenotypic.

The species *Dumerilia pulchra* Leach, 1824, seems to have been entirely overlooked by Chevrolat, 1874, although he mentioned the genus *Dumerilia* in the beginning of his monograph (p. 10) where he gave a summary of Leach's work. According to the description, it has the head black, the thorax bluish-black, and the legs reddish. Fabricius, 1792 (Ent. Syst., I, 2, p. 41), described *Cebrio fuscus* from the Cape of Good Hope. His species is entirely fuscous, immaculate. Chevrolat erected the genus *Leptelytron* for this Fabrician species and for another (*gracilitarsis*), which he separated from *fuscus* as being piceous black. He accepted the figure of Guérin, 1829 (Icon. Règ. Anim., Ins. II-b, pl. 13, fig. 2) as the true *fuscus* Fabricius. If this is the true *fuscus,* I believe that *pulchra* Leach is the same as *gracilitarsis* Chevrolat [NEW SYNONYMY]. Thus *Leptelytron* Chevrolat is suppressed for *Dumerilia* Leach.

SCAPTOLENUS LECONTE

Scaptolenus LeConte, 1853, Trans. Amer. Philos. Soc. 10: 504.

Genotype: *Scaptolenus femoralis* LeConte, 1853 (not Chevrolat, 1835), [=*Scaptolenus lecontei* Chevrolat, 1874]. Monobasic.

Type locality: Texas.

LeConte erected the genus *Scaptolenus* for his new species *femoralis* in 1853. In 1874 Chevrolat decided that the species he had described in 1835 (Col. Mexique, Cent. II, No. 200) as *Cebrio femoralis* was congeneric with LeConte's species, necessitating the renaming of LeConte's *femoralis.* Chevrolat renamed it *lecontei,* (Ann. Soc. Ent. Fr., ser. 5, vol. 4, p. 510, 1874).

The species of this genus occur in western United States, Central America, and northern South America. See Champion, 1896 (Biologia Centrali-Americana, Insecta, Coleoptera, vol. 3, pp. 557-573), for a study of these species.

CEBRIORHIPIS CHEVROLAT

Cebriorhipis Chevrolat, 1874, Ann. Soc. Ent. Fr., ser. 5, vol. 4, p. 527.

Genotype: *Cebriorhipis elongatus* Chevrolat, 1874, l.c. p. 527 and 528. Present designation.

Type locality: Java.

Chevrolat described four new species from Siam, Malacca, and Java, giving them the new generic name *Cebriorhipis.* Dalla Torre, 1912 (Genera Insectorum, fasc. 127) indicated *Cebriorhipis elongatus* Chevrolat, 1874 as type on the colored plate included with his publication. It is doubtful if he meant this as a genotype designation, but this species will be so considered here, either as designated by Dalla Torre, or as a present designation as indicated above.

The species of this genus occur in the Malayan region.

MUSOPSIS CHEVROLAT

Musopsis Chevrolat, 1874. Ann. Soc. Ent. Fr., ser. 5, vol. 4, p. 532.

Genotype: *Musopsis minarum* Chevrolat, 1874. Monobasic.

Type locality: Brazil.

One Brazilian species, apparently known only from a single male in the Paris Museum collection, is the extent of this genus.

SELONODON LATREILLE

Boscia Leach, 1824 (not Leach, 1814, Schweigger, 1819, Ferussac, 1822) Zool. Jour. 1:37.

Genotype: *Boscia picea* Leach, 1824 [=*Cebrio bicolor* Fabricius, 1801, according to Duponchel *in* D'Orbigny, Dict. d'Hist. Nat., p. 659, 1842]. Present designation.

Type locality: North America.

This name is preoccupied and hence not available. Leach included five species in this genus, all from North America. By the present designation of *Boscia picia* Leach [=*Cebrio bicolor* Fabricius], it becomes synonomous with *Selonodon* Latreille by genotype synonymy. The other species in the genus are: *Boscia punctata* Leach, 1824, p. 37; *Boscia olivacea,* l.c.; *Boscia glabra,* l.c. p. 38, and *Boscia minuta,* l.c., all of which remain unknown and have never been listed or recorded in any North American catalogue.

Selonodon Latreille, 1834, Ann. Soc. Ent. Fr., 3:163.

Genotype: *Cebrio bicolor* Fabricius, 1801. Monobasic.

Type locality: America (Carolina).

In 1801 Fabricius (Syst. Eleuth. vol. 2, p. 14) described a new species, *bicolor* from America (Carolina), which is the monobasic genotype of the genus *Selonodon* Latreille, 1834. It is congeneric with *Anachilus mandibularis* LeConte, 1863, but it is not the same as Leach's *bicolor* "Fabricius" (1824, p. 35) from Barbary, Africa. The American species of "Cebrio" (*Cebrio* of recent American authors and *Anachilus* LeConte) all belong in this genus, *Selonodon* Latreille.

Seledodon Chevrolat, 1874. Misspelling of *Selonodon* Latreille, 1834.
Selenedon Chevrolat, 1874. Misspelling of *Selonodon* Latreille, 1834.
Selenodon Chevrolat, 1874. Misspelling of *Selonodon* Latreille, 1834.
Anachilus LeConte, 1861, Smithsonian Misc. Collect. vol. 3, p. 175.
(no included species).

Genotype: *Anachilus mandibularis* LeConte, 1863, Smithsonian Misc. Collect., New Species Col., pt. 1, p. 86. The type is automatically fixed by being the first included species, and the only species there described or listed.

Type locality: Florida.

Horn in 1881 (Trans. Amer. Ent. Soc., 9:82-85) gave a synopsis of the North American species of Cebrionidae, stating that he could find no valid reason for retaining the genus *Anachilus* LeConte and therefore suppressing it in favor of *Cebrio*. He also rejected *Selenodon* (sic!) being unable to determine Chevrolat's reason for using it for the North American species. Horn, of course, overlooked the genotypes, or neglected to study the European species of the genus or he would have seen the reasons for not using *Cebrio*, as LeConte had years before. This error has been perpetuated by American authors until the present time.

PERIGONA NIGRIPES DEJ. IN THE UNITED STATES (CARABIDAE)

By KENNETH M. FENDER *and* MELVILLE H. HATCH

Perigona nigripes Dej. is a cosmopolitan species recorded by Csiki (Col. Cat. 115, 1931, pp. 897-898) from numerous localities in southern Europe, southern Asia to Japan and New Guinea, eastern Africa, Madagascar, Queensland, New Caledonia, West Indies, and the Atlantic Islands. The species was first recorded from the United States in 1853 from Georgia and "Carolina" by LeConte (Trans. Am. Phil. Soc. X, 1853, p. 386) under the name *Trechicus umbripennis* LeC. Since then it has been recorded from Florida (Enterprize—Schwarz, Proc. Am. Philos. Soc. XVII, 1878, p. 436), District of Columbia (Hamilton, Trans. Am. Ent. Soc. XXI, 1894, p. 355), California (Pasadena—Fall, Occ. Pap. Cal. Acad. Sci. VIII, 1901, p. 47), and Ohio (Cincinnati—Dury, Jour. Cincinnati Soc. Nat. Hist. XX, 1902, p. 114).

N. M. Downie has a specimen of this species, determined by C. A. Frost, from Elbridge, New York, taken in 1941; and Mr. Frost, in 1948, took six specimens in a pile of grass at Framingham, Massachusetts. Fender has two specimens taken at Forest Grove, Oregon, in 1941, and two specimens taken at McMinnville, Oregon in 1941 and 1944.

In the United States outside of the southeastern states, *Perigona nigripes* probably is not endemic, and it may be introduced even in those states. It is apparently well established in western Oregon.

Perigona nigripes LeC. may be briefly described as follows: testaceous, the head behind the clypeus and a spot in front of the oblique apical portion of the impressed eighth elytral stria piceous; pronotum and elytra feebly opalescent; above shining, nearly impunctate, finely alutaceous, the head more evidently so; pronotum about two-thirds as long as wide, the apex and base subequal in width, the hind angles obtusely rounded, feebly deplanate, without basal impressions, the side margins oblique or broadly and very feebly sinuate in front of the hind angles; elytra with discal striae at most very feebly developed, the three inner ones the most distinct, the third interval with three dorsal punctures, the eighth stria deeply impressed and obliquely extended nearly to the suture, the area between the eighth stria and the margin finely setose, the elytral apex subarcuate; length 2.5 mm.

Perigona Cast. together with three other Neotropical genera is regarded by Csiki (Col. Cat. 115, 1931, pp. 894-899) as constituting the tribe Perigonini immediately following Pterostichini *sens. lat.* The Nearctic and European members of the Perigonini may be distinguished from the Pterostichini, Amarini, and Platynini of the Leng *Catalogue* by the feebly developed discal elytral striae and the deeply impressed eighth stria, which extends obliquely nearly to the suture.

NOTE.-- As the printer's proof of this note passes through my hands, I discover that Jeannel (Faune de France 40, 1942, p. 581) affirms that *Perigona nigripes* is endemic in the lands bordering the Indian Ocean making the species introduced in America and Europe. -- M.H.H.

CITING LITERATURE IN THE COLEOPTERISTS' BULLETIN

By RICHARD E. BLACKWELDER

Nearly every science journal adopts or develops a style in which certain parts of its contents must be printed. The editor normally corrects all manuscripts to make them conform to this style, and sometimes an attempt is made to instruct the authors so that their manuscripts will require less editing.

Among the subjects for which particular styles are often adopted are the synonymy of species and the citation of bibliographic references. Even without a fixed style an alert editor can catch many inconsistencies, but some will likely not be obvious to him. For example, in bibliographic references the titles of journals must generally be abbreviated to save space, and yet unsatisfactory abbreviations can cause great confusion. There are a few extensive lists of the journals of the world, some with "standard" abbreviations listed, but none of these are sufficiently available to be of much help to the ordinary writer who is already too busy with his studies.

The need for adoption of a style for the Coleopterists' Bulletin has already been felt. Instead of merely announcing that we will follow such-and-such style manual, we believe our authors and readers will welcome a statement of the basis for the style. This may help writers to establish a style for their own writings, which is a great help in all bibliographic work. We have therefore prepared the following notes on bibliographic style to be used in the Bulletin, based largely on the style used in zoological publications by the U. S. Government Printing Office. This style, as regards references, is nowhere written down in detail but is nevertheless closely followed by the editors involved.

EXAMPLES OF STYLE FOR THE BULLETIN

1. In formal bibliographies:

Smith, John J.
  1914. Key to the species of *Thrombus* in northeastern North America. Ann. Ent. Soc. America, vol. 197, pp. 14-17.
  1915. Notes on Orthoperidae of Argentina. Bol. Acad. Nac. Cienc. Cordoba, vol. 96, pp. 11-24.
  1915. Encyclopedie entomologique. . ., vol. 4, 376 pp. Paris.
  1920. Biologia Centrali-Americana: Insecta, Coleoptera, vol. 1, pt. 2, pp. 1-144.
  1921. *Idem*, vol. 1, pt. 2, pp. 145-312.

2. In informal lists of literature cited:

Smith, John B. Key to the species of *Thrombus* in northeastern North America, Ann. Ent. Soc. America, vol. 197, pp. 14-17. 1914.

Smith, John B. Encyclopedie entomologique . . ., vol. 4, 376 pp. Paris. 1915.

Abbreviations of Titles of Journals

The only feature in the above examples which seems to require further comment is the choice of abbreviations for titles of journals. The following rules will cover nearly all cases.

A. Words to be used in the abbreviation.

1. Do not abbreviate titles consisting of a single word.
   Psyche, Zoologica, Science
2. Use all the principal words of the full title.
   Proceedings of the *Academy* of *Natural Sciences* of *Philadelphia.*
   Verhandlungen der k. k. *zoologisch-botanisch Gesellschaft* in *Wien*
3. Use no words not in the title.
   Bulletin du Museum Nacional d'Histoire Naturelle (do not add Paris, since it is not part of the title)
4. Omit all articles and connectives, except as indicated under exceptions below.
   (See examples under 2 above)

B. How to form the abbreviations.

5. Write out in full: (a) words of one syllable, (b) names of places, (c) names of persons (unless used as adjective, as Linnean, Cuvierian, Leopoldino).
6. Stop before the second vowel, unless the resulting abbreviation would contain only one consonant, in which case stop before the third vowel. (See also under Exceptions, below.)
   Entomological—Ent.
   Academy—Acad.
   Bulletin—Bull.
   Boletim—Bol.
   Society—Soc.
   Science—Sci.
   Proceedings—Proc.
   Zeitschrift—Zeitschr.
7. Numerals are abbreviated thus:
   Fiftieth—50th
   Second—2nd
   Deuxieme—2me
   Vierte—4te
8. Exceptions:
   a. Compound germanic words. Write out the first part and add the first letter of the second part.
      Monatsbericht—Monatsb.
      naturhistorische—naturh.
      Insektenkunde—Insektenk.
      Nachrichtenblatt—Nachrichtenb.
   b. For clarity, add one or more letters.
      Philosophical—Philos.
      Agriculture—Agric.

c. To avoid confusion, add another syllable or write out in full.

Rev. Ent. would be confusing since it might refer to either Revue Ent. or Revista Ent.

Zeit. would be confusing since it might stand for Zeitung or Zeitschrift.

Annuaire should be written out, not as Ann. or Annu.

d. If necessary to add something to distinguish one of two identical titles, as Nunquam Otiosus, use parentheses, thus: Nunquam Otiosus (Buenos Aires) or Nunqu. Otios. (Dresden).

e. In cases of similar titles generally written with an article before the main (or only) word, use the article only when necessary to distinguish them except where the article is connected by an apostrophe.

The Entomologist—Entomologist
L'Entomologiste—L'Entomologiste
Le Frelon—Frelon
L'Echange—L'Echange
El Repertorio—Repertorio
Revista de Entomologia—Rev. de Ent.
(or Revista Ent.)
Revue d'Entomologie—Rev. d'Ent.
(or Revue Ent.)

f. Use the following acceptable short abbreviations.

Monthly—Mo.
United States—U. S.
Comptes Rendus—C. R.
Department—Dept.
Report—Rpt.

C. Capitalization, arrangement, translation.

9. Capitalize all initial letters, except in German titles where only nouns are capitalized.

Ann. Ent. Soc. America
Bull. Soc. Ent. Belgique
Arb. morph. tax. Ent. Berlin-Dahlem
Bol. Acad. Nac. Cienc. Cordoba

10. The abbreviations follow exactly the order of the full titles.
    Proc. California Acad. Sci., *not* California Acad. Sci. Proc.
    U.S. Nat. Mus. Bull., *not* Bull. U.S. Nat. Mus.
    Trans. Acad. Sci. St. Louis, *not* Trans. St. Louis Acad. Sci.
11.. If the title is given on the journal in several languages, use the one in the native tongue unless it is in non-Latin characters.
    Sbornik Ent. odd. Nat. Mus. Praze, *not* Act Ent. Mus. Nat. Pragae, *not* Per. Ent. Sect. Nat. Mus. Prague.
    Hor. Soc. Ent. Rossicae, *not* the Russian form.
12. Do not translate titles into English (or any language other than the original.)

Bibliographia

BOOK REVIEWS

INSECTS OF HAWAII, by Elwood C. Zimmerman. Vol. 1, Introduction, 206 pp., 52 figs., University of Hawaii Press, Honolulu. 1948. $3.50.

This is the introduction to a manual of the insects of the Hawaiian Islands; only parts of particular interest to students of beetles are mentioned here. According to the author, who is a well known coleopterist at the Bernice P. Bishop Museum in Honolulu, the Hawaiian Islands arose from the sea bottom as a result of volcanic activity in the late Tertiary, about 5,000,000 years ago. They were populated largely by wind-blown organisms from the nearest neighboring lands. There is no reason to believe that continental land masses were any nearer then than now, but it is possible that there were neighboring "high" islands that have since been eroded down and become coral reefs and from which elements of the fauna could have been derived.

The 1600 species of beetles in the archipelago constitute nearly one-third of the insect fauna. Of these, 1,220 species and 70 varieties are endemic, i.e., not naturally found elsewhere. The endemic forms belong to 19 families, of which the Carabidae (222), Aglycyderidae (181), Curculionidae (159), Anobiidae (156), Nitidulidae (143), Cerambycidae (100), and Staphylinidae (93) are best developed, with Ciidae (50), Elateridae (45), Histeridae (35), Eucnemidae (33), Scolytidae (23), and Dermestidae (20) coming next. It is possible to derive these 1220 species from only about 40 (39 to 41) original immigrants. (The entire 3722 endemic insect species can be derived from between 223 and 254 immigrants, the 1064 endemic land snails from between 22 and 24 immigrants, the 70 endemic birds from 15 immigrants, and the 1633 endemic seed plants from 272 immigrants.) The most extensive speciation has occurred in the Aglycyderidae including the single wingless genus *Proterhinus*, all of whose 164 species are probably derived from a single immigrant. The 222 Carabidae have probably come from beween 4 and 6 immigrants, the 156 Anobiidae from 3, the 143 Nitidulidae from 2, and the 100 Cerambycidae from 3 immigrant species. Host plant specificity, the isolating effect of the incredibly rugged terrain, and the effects of mutation in small populations have been important elements in this speciation. The species frequently have a very restricted distribution. Thus 13 species of *Rhyncogonus* (Curculionidae) have a non-overlapping distribution on the single island of Oahu.

Many groups of species are flightless, e.g., the Aglycyderidae (164 species) and *Mecyclothorax* (85 species, Carabidae). Darwin attributed this to the selective influence of winged individuals being blown out to sea! Dr. Zimmerman believes that the Hawaiian Islands are too large to make such a process effective. He proposes as an alternative, that the insular environment is so simple and offers so little opposition to colonization that degenerate wingless mutants that would normally be eliminated by natural selection are allowed to survive. Large sections of Coleoptera, including Carabidae, Staphylinidae, Histeridae, Nitidulidae, Elateridae—over 500 species—are not known to have any insect parasites and no important predators in the adult stage. The wood-boring beetles (Anobiidae, Ciidae, Cerambycidae, Curculionidae) are more subject to endemic parasite and/or predator attack.

The Polynesians arrived in the islands about the twelfth century, bringing with them chickens, pigs, dogs, and rats. Following the visitation of Captain Cook in 1778, cattle, goats, sheep, horses, cats, agriculture, and a host of associated plants and animals were introduced. Cattle, by destroying the undergrowth and promoting the spread of introduced grasses, have been particularly destructive to the forests. At an early date the islands of Kahoolawe and Niihau were completely denuded by cattle, sheep, and goats, resulting in the extermination of the endemic flora and fauna; and on the larger islands the native forest has been reduced to less than one-fourth of its original extent. Below 1500 to 2000 feet few endemic insects remain. The voracious introduced ant, *Pheidole megacephala,* which occurs everywhere in the lowlands, alone has accounted for untold slaughter. Introduced parasitic wasps, likewise, have attacked certain of the endemic species; and in 1913, 90% or more of two species of endemic Cerambycidae were found to be parasitized by foreign *Ischiogonus* wasps. In all, Dr. Zimmerman estimates that a third or more of the endemic insect species of the islands have become extinct, and most of the survivors have been greatly reduced in numbers.

Man has discovered, however, that, if he is to continue to inhabit the archipelago, he must protect the watersheds. About one-fourth of the total area is now forest reserve, but not all the forest reserve is clothed in native forest.

MELVILLE H. HATCH.

A CENTURY OF ENTOMOLOGY IN THE PACIFIC NORTHWEST, by Melville H. Hatch. University of Washington Press, Seattle. March 14, 1949. $1.50.

This is an interesting little booklet of 43 pages with portraits of ten entomologists. It recalls the development of interest in insects in the Pacific Northwest region and the persons who took part. It briefly mentions the early collectors and the specialists who received their specimens, the colleges where entomology has been taught, the agencies concerned with insect control and eradication, the principle collections and their custodians, and the publications of the local entomologists.

It will be of interest to all those concerned with the insects of the region, as well as to biographers of entomologists and historians of entomology.

Professor Hatch divides the history of entomology in the Pacific Northwest into three periods, that of itinerant collectors from 1834 to 1875, that of resident collectors from 1875 to 1890, and that of established laboratories from 1890 to the present. Three periods of somewhat different extent can also be seen in Professor Hatch's history, resulting from a different line of approach; these are a period of collecting from 1834 to 1890, with the specimens studied largely by eastern or European scientists; a period of development of economic entomology and aspects related thereto from 1890 to 1930; and since 1930 the beginning of a period of more basic interest in insects, with increase in teaching facilities, in taxonomic work, and in direct publications.

No analysis of needs or forecast of the future is attempted by Professor Hatch. However, his remarks do seem to establish the basis for certain generalities and to indicate needed future developments. The Pacific Northwest of this study is not exactly the portion of northwestern North America which lies along the Pacific Ocean, for this region would include Alaska and the Aleutian Islands. It is rather a specified region in the Far West of the United States and Canada which has come to be known in the Far West of the United States as Pacific Northwest. Professor Hatch defines this area as including British Columbia, Washington, Idaho, and Oregon.

The reviewer is impressed by the fact that in the three states no central agency has even yet been established for sponsoring entomological work in the area. No single depository has been established where major collections can eventually be deposited. No organization of entomologists has been formed to promote their interests or increase their personal contacts. No generally used local publication outlet has been established, although a close tie exists with the Pacific Coast Entomological Society and its Pan-Pacific Entomologist through membership and subscription. And each of the periods listed in the alternative scheme above has lagged considerably behind the corresponding periods in the more southerly Pacific area often referred to as the Pacific Coast and consisting principally of the state of California.

It is no criticism of the Pacific Northwest to point out its relative stage of development. But the entomologists of the area should get together and decide whether they wish to maintain the region separate from the more southerly influences or join them and take an active part in them. If the former, then a regional museum and library would seem to be an early need, through which the entomologists could keep in touch, and in which the results of their work might be preserved. In a region of such great entomological interest, there is sure to be increasing emphasis on the study of insects, and that study will become more substantial and productive as the local facilities and the professional training of the workers are increased.

We wish the entomologists of the Pacific Northwest all possible success in their work and foresee a period of great expansion and research.—R. E. B.

BOOK NOTICE

On reading the taxonomic descriptions or other works of a fellow entomologist I often wish I knew him, or at least knew about him. A knowledge of his background of home, schooling, and travel should make it easier to realize to a shade the meaning of what he writes. But it is actually the more personal facts I wonder about: has he a sense of humor, is he a happy, friendly soul? His technical articles are not likely to tell me this.

Perhaps you have corresponded for years with another enthusiast, enjoyed each letter fully; at last you meet, and talk for hours and hours. Thereafter each message has read into it a rich personal coloring, put there half by you. This, one can do with the living. Is it possible to have equal pleasure in writers of the past? I think so, but only in ratio to our feeling for the personalities behind the words.

True, there are usually obituaries for reference, though they tend to be merely laudatory, to itemize dates and accomplishments. Far better are the unrehearsed letters sometimes found in print. Read those of E. A. Schwarz to his friend H. G. Hubbard (Jour. New York Ent. Soc., Sept. 1929); it is not necessary to be a coleopterist or even an entomologist to enjoy them. Who can fail to get a vivid picture from this: "When I came to the box containing the 'Cioid' and looked at the latter I came near being paralyzed and it required a superhuman effort and a swallow of whiskey to recover. Your Cioid turns out to be a most remarkable and entirely new genus of Scolytids!! . . . the specimens were at once exhibited and Hopkins became perfectly wild with excitement and cursed his miserable West Virginia Scolytids because they did not show any distinguishing characters except after a most painful scrutiny."

There are other examples which give the human and interesting side of a naturalist, notably in the writings of Harry B. Weiss and Herbert Osborn, but they are all too few.

The excuse for these comments is the publication of a second edition, revised and enlarged, of S. W. Geiser's fascinating book "NATURALISTS OF THE FRONTIER" (University Press in Dallas, Dallas 5, Tex. 296 pages, frontispiece, 11 maps. $5.00). The volume is dedicated to the memory of Jacob Boll, whose likeness appears in the front. Chapter I is introductory; the subjects of the rest are as follows: II, J. Boll; III. J. L. Berlandier; IV. T. Drummond; V. J. J. Audubon; VI.

L. C. Ervenberg; VII. F. J. Lindheimer; VIII. F. Roemer; IX. C. Wright; X. G. Lincecum; XI. J. Reverchon; XII. G. W. Belfrage; XIII. Notes on Scientists of the First Frontier [chiefly of S. Carolina, Kentucky, Tennessee]; Appendix A. Principal Sources of the Foregoing Chapters; B. A Partial List of Naturalists and Collectors in Texas, 1820- 1880; C. Incomplete List of the Author's Publications on the History of Science in Early Texas.

Each study traces in detail, with many quotations from old letters, the naturalist's life and work, travels and troubles, in Texas. Much background material is given, as well as follow-up data about those who did not stay. The essays are factual, yet delightfully easy to read, and their writing was preceded by many years of research and correspondence. Be it noted that all the naturalists, except perhaps Audubon, collected beetles, some intensively. To get them they travelled widely, not as we now do by car on paved highways, but on foot or by horse, alone, with Indians, or with the army on boundary surveys; for those were the days of bottomless mud roads, of floods and of fever, all in a frontier country.

Entomology in the United States and Canada has made its greatest strides in the past 75 years. There is a real need for capturing in print the personalities of the men involved. Many who knew them well are authors of repute, and can tell the stories if they will. But the essence is "do it now", for in another 20 years data can be gathered only third hand, and it will be ever harded to know where legend has distorted fact.

If a historian is a true research student, a critic and analyst, and has a sense of humor to boot, his audience is fortunate indeed. More writing like that of Dr. Geiser's is needed. Dry biographical statements are essential in any history of entomology, but a leavening of first hand accounts and personal idiosyncrasys may decide whether future students will read in drudgery or for pleasure.—HUGH B. LEECH, California Academy of Sciences, San Francisco 18, Calif.

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus*. I can offer German species of *Cicindela* and *Carabus*.. Would like to receive specimens of these genera from any place in the world. A. KORELL, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. DARLINGTON, JR., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. DR. A. FOCARILE, JR., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE —7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. DR. A. FOCARILE, JR., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. JOLIVET, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. IRA LA RIVERS, Biology Department, University of Nevada, Reno, Nev.

INSECT BOXES—For sale, 18 x 11¾ x 5 inch insect collection boxes. Pinning composition on each side. White liners on pinning bottoms. Latched and hinged. These are special boxes of which we have but a limited quantity. Sanded but not finished. $4.00 each. BIO METAL ASSOCIATES, Box 346, Beverly Hills, Calif.

HISTERIDAE—Can offer local material in nearly all families for Histeridae. DAVID VERITY, 690 Cuprien Way, Laguna Beach, Calif.

PSELAPHIDAE—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. THEO. TELSCH, 158 W. Spencer St., Philadelphia 20, Pa.

Passalidae—of the world, revising and will determine material from any part of the world. Can offer several families in exchange. W. D. Hincks, Department of Entomology, Manchester Museum, The University, Manchester 13, England.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

Carabidae—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

LITERATURE FOR SALE

The Entomological Society of Washington is offering for sale sets of unbound papers on Coleoptera. The papers were published in the Proceedings of the Society between 1892 and 1930. Each set contains 57 papers or more (the first 10 sets contain 70 to 74 papers) with at least 300 pages and approximately 30 plates or text figures. Nine of the papers treat larvae of Coleoptera. The principal authors are Schwarz, Fisher, Barber and Pierce. Price: $5.25, prepaid. Order from: Corresponding Secretary, Entomological Society of Washington, U. S. National Museum, Washington 25, D. C.

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THE
COLEOPTERISTS' BULLETIN

Volume III 1949 Number 5

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THE COLEOPTERISTS' BULLETIN

The Coleopterists' Bulletin is published bimonthly. It is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

Manuscripts should be prepared to conform to the style used in the Bulletin and to announcements of style therein. They should be typewritten, double-spaced.

Illustrations will be accepted if suitable and adequate. No charge will be made unless the cost is deemed excessive.

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Manuscripts for Bibliographia: Dr. Richard E. Blackwelder.
All other manuscripts and correspondence: Dr. Ross H. Arnett, Jr.
Address any of the above at:

Division of Insects, U. S. National Museum,
Washington 25, D. C.

DATE MAILED: NOVEMBER 8, 1949

THE COLEOPTERISTS' BULLETIN

Volume III 1949 Number 5

AN INDEXING SYSTEM FOR TAXONOMISTS

By George C. Steyskal
Grosse Ile, Michigan

Anyone who intends to do accurate systematic work must have some means of keeping up to date the catalog of the species of the group in which he is working. The older the available catalogs are the more essential it is that an efficient method of keeping the subsequent literature readily available be put into use.

The principles of systematics have been treated in a few texts, but the mechanics of the subject has been neglected. The writer is aware of no published directions for setting up and maintaining a card catalog of species and their literature, a job that is not too simple, and workers have been forced to devise their own methods with the concomitant loss of much time and effort.

The unsystematic methods used by too many systematists have been the most prolific source of synonymous names and other reduplication of effort and confusion. The likelihood of the creation of homonyms is greatly reduced when an efficient card catalog is maintained and used. The writer considers the maintenance of a perpetuating index a necessary part of the labors of every taxonomist until the time when a general continuing index of species, such as advocated by E. T. Cresson, Jr. (1929, Trans. 4th Internat. Cong. Ent., vol. 2, pp. 484-487), is published—a time still apparently quite remote.

The writer has found that the method here described is of great practicality in his work with the acalyptrate Diptera. The method may need some modification of details when applied to other groups, but it is believed that the method is fundamentally applicable to any group. The ease and rapidity of obtaining the whole view of the knowledge concerning any species or group indexed by this means are great advantages.

DESCRIPTION OF THE METHOD

The method basically consists in copying the essential data of the latest general catalog onto 3x5-inch filing cards and adding references to the subsequent literature secured from the various lists, abstracts, and current publications (cf. list in this Bulletin, vol 3, p. 25). The large number of species involved in entomology, together with the fact that very few data are associated with a large proportion of them, makes the use of 3x5 cards most practical. Should no general catalog or monograph be available, recourse must be had to Hagen, Carus and Engelmann, Taschenberg, Horn and Schenkling, and a tedious search through often rare and difficultly accessible literature.

The index consists of two parts, the species file and the bibliographic file.

The first step is to transcribe the catalog to cards. It is desirable to set as wide a geographic limit as possible. A world index is ideal. The arrangement throughout should be alphabetical, each category under the next higher, with the exception that it may be desirable to place the highest category in phylogenetic sequence.

1. The Species File

The species file should include cards for every species name, including synonyms and homonyms. Several kinds of cards are made, as follows:

1. Tab cards bearing only the names of the larger groups, such as families, superfamilies, subfamilies, tribes, etc. If but one or a few families are indexed, tab cards may be used for each genus.

2. Family cards, including references to generic keys, revisions, catalogs, local lists, etc. References to the first use of a family name may be included. Compare the following examples.

EPHYDRIDAE

Keys to No. Amer. spp.; catalogue of spp. of world—Jones 05:153.
Key to No. Amer. genera—Williston 08:306.
Two subfamilies recognized (Ephydrinae and Notiphilinae)—Hendel 17:40.
Key to Costa Rican genera—Cresson 18:41.
Rev. Gymnopinae No. Amer.—Cresson 22:327.

TYLIDAE
(MICROPEZIDAE)

Key to No. Amer. genera–Williston 08:266.
Key to subfams. (Neriinae and Micropezinae); key to known genera of Neriinae–Cresson 12:389, 390.
Male postabdomen–Cole 27:445.
Key to No. Amer. genera–Curran 34:450.
Rev. of fam. for No. Amer.–Cresson 41:27.

3. Genus cards, with full citation of each genus, including names of species originally included, name of genotype if one was designated and statement of the fact if no type designation was made. Synonymous genera are filed in chronological order behind the valid genus, with dummy cards referring to the valid genus inserted in alphabetical order in the file. Genus cards may be of a different color from the species cards. The writer has found it simple to paint with water-color or tempera a colored stripe approximately 2 mm. wide along the top edge of the cards. The color assists in finding them in the file without the use of tab cards. This is especially helpful when there are many synonymic genera. Compare the following examples.

Valid genus:

EUTRETA Loew 1873,

Smithsonian Misc. Collns. 11 (Monogr. Dipt. No. Amer.3) :275–2 spp., *Trypeta sparsa* Wd., *T. rotundipennis* Lw.; type not designated.
Syn., ICARIA Schiner 1868 (Preocc.)–AC. (for Aldrich Catalogue 1904).
Trypeta sparsa designated type–Coquillett 10:543.
Key to 3 spp. (*sparsa, rotundipennis, diana*)–Phillips 23:141.
Key to *sparsa* and 2 n. spp., *hespera* and *angusta*–Banks 26:44.

Dummy or Cross Reference Card:

ICARIA Schiner 1868
see EUTRETA

Synonymic genus:

ICARIA Schiner 1868,

Novara Reise, Zool. 2, Dipt. :276–three spp., *Trypeta sparsa* Lw. (type), *I. frauenfeldi* Sch., *I. distincta* Sch.

=EUTRETA Loew 1873; preocc. by ICARIA Saussure 1853–AC; Coquillett 10:543.

4. Species cards, including full original citation with exact date (month and day if possible), plate and figure numbers, all type information, and place of deposition of the holotype. Note in the examples below that the name of the species is written first, then in parentheses the genus to which it was originally referred, then the author's name and year of publication, and finally in parentheses the more exact date when such is available, after which the remaining data follow on the succeeding line, indented a couple of spaces. An abstract of the historical data follows as the first subsequent citation, identified by the initials of the catalog (in this case AC, for Aldrich Catalog). Dummy cards are made for species transferred to other genera than the one in which the species was originally proposed; e. g., many of the species cards under the genus *Trypeta* are merely dummies, or cross references, referring to the genus in which the species is at present located; thus, the present allocation of the species may always be found under its original genus. Compare the following examples.

---

sparsa (Trypeta) Wiedemann 1830,

Aussereur. Zweifl. 2:492–no locality.

Placed in *Eutreta*; early history; syns.: *Trypeta caliptera* Say, *Platystoma latipennis* Macq., *Acinia noveboracensis* Fitch–AC

Oak Creek Canyon, Ariz.-Snow 04:345.

Creek Canyon, Ariz.–Snow 04:345.

Nevada–Baker 04:30.

Cloudcroft, N.M.–Cresson 07:101.

Gall; Worcester, Mass.–Thomson 07:72, f.2.

N.J. localities–Smith 10:346.

Designated type of *Eutreta*–Coquillett 10:543.

Laguna Beach, Calif.–Cole 12:158.

Galls on weed Lantana in Hawaii–Swezey 15:542.

Card 2-sparsa (Trypeta) Wd.

Conn.-Britton 20:204.
Baton Rouge, La., on Carduus spinosissimus-
Rosewall 22:179.
Nova Scotia; fig.-Phillips 23: 141, pl. 19, f.39.

angusta (Eutreta) Banks 1926 (April),

Psyche 33:44-Texas (sex and depository ?).

diana (Eutreta) Osten-Sacken 1877,

Bull.U.S.Geogr.Surv.Terr. 3(2) :347-male, female, Missouri (Mus. Comp. Zool.).
Nebr.; Wash.; Mont.-AC
Oregon-Cole and Lovett 21:325.
Calif.; fig.-Phillips 23:141, pl. 19, f.41.
Seton Lake, Lillooet, B.C.; Medicine Hat, Alta.-Curran 27:57.

tricolor (Eutreta diana var.) Snow 1894,

Kansas Univ. Quart. 2(3):168-male, Reno, Nev.; female Mon. (Univ. Kans. Mus.).

oregona (Eutreta) Curran 1932 (Sept. 12),

Amer. Mus. Novitates 556:18-holotype, male, Blitzen River, Ore. (Amer. Mus. Nat. Hist.); paratypes, males, Narrows, Ore.; Warm Springs V, Ore.

sparsa (Trypeta) Wiedemann 1830

---

see EUTRETA

Note the method used to refer to the literature. The author's name is followed by the last two digits of the year of publication, then a colon followed by page, plate, and figure reference. In the case of two papers by the same author in the same year where page numbers overlap, a letter may be used after the year digits e.g., *Cresson 19a:274* means page 274 of a second paper published by Cresson in 1919. Indication of this must also be added to the bibliography card. This method of referring to the literature obviates much repetition.

Note also that when one card is filled, another headed with a serial number is started. This is not frequently necessary in the author's file.

2. *The Bibliographic File*

In transcribing the catalog it may be thought desirable to include all references to the literature as well as to the species, thus transcribing the complete catalog. This may be especially desirable in working with a small group. However, the writer believes that ordinarily it is sufficient to add a short abstract of the history of each species as recorded in the catalog as the first citation, beginning the bibliographic file immediately subsequent to the catalog. Thus, the writer's file starts with the year 1905, with the exception of a few papers not recorded in the Aldrich Catalog. The file is arranged chronologically and alphabetically under authors' names, with tab cards for each year.

Sources. The Zoological Record is the most important source and other lists must be considered secondary.

Procedure. The first step is to go through the literature list in the pertinent portion of the Zoological Record, starting early enough to be sure that there is no hiatus between the catalog and the index. Notebooks are kept, one for each year, into which all pertinent citations are copied. Many references need checking for pertinency, so everything that seems likely should be included.

On the basis of the notebooks, all available literature is examined, making notes on new species and any new information brought forth concerning already described species. For instance, a paper may include notes on a type, a type may be selected, distributional data may be given, anatomical, physiological, bionomic, behavioristic, or other data may be included. This is all noted under a proper heading. If the paper is owned or may be borrowed, it can be abstracted for the cards directly.

Next a card is made for the bibliographic file (see examples below.) Notations are added to the family, genus, and species cards, and cards made for new species or species newly discovered within the area treated (see previous examples). At this step Biological Abstracts is very helpful, but it should be remembered that it never takes the place of the actual publication. If an abstract is used in place of an unprocurable publication, that fact should be noted on the cards. Data concerning the contents of each paper may be added below the citation, such as the names of new species if not too many, number of species included in local lists, notes on localities, etc., to add to the title information. A mark may be added to indicate that the paper is in one's personal library, or where it may be consulted, library call numbers, etc. It is also desirable to indicate the source of references which turn out to be difficult to verify. Examples of bibliographic cards:

Phillips, V.T.

A revision of the Trypetidae of northeastern
America...Jour. New York Ent. Soc. 31:119-
155, pls. 18-19 (Sept., 1923).

Rosewall, O.W.

Insects of the yellow thistle...Ent. News
33:176-180 (June, 1922).
Insects collected on *Carduus spinosissimus*
Walt. at Baton Rouge, La., p. 179-*Carphotricha culta*; *Eutreta sparsa*; *Trypeta palposa* (reared).

The citation is then, and not until then, checked off in the yearly notebook. A convenient way to do this is to draw a vertical colored-crayon mark down the left-hand margin so that a continuous conspicuous line runs down the page when all references have been added to the files.

When all available literature of a year has been exhausted and a residue of difficultly accessible items remains, these may be transferred to a loose-leaf notebook and the yearly notebook put away and eventually discarded. The bibliographic cards should be marked in some manner to indicate that they have been species-indexed. The residual citations may then also be put on cards and filed without the distinguishing marks.

A NOTE ON MALACHIIDAE

H. S. BARBER, *Washington*, D. C.

Dr. M. Y. Marshall's STUDIES IN THE MALACHIIDAE II, Entomologica Americana, vol. 28, no. 4, October 1948 (Pub. June 6, 1949), corrects several misapplications of generic and specific names and provides a long needed key to the twelve genera recognized in our fauna as well as a key to our species of *Anthocomus* in which are now placed the species formerly listed under *Malachius* with the single exception of the introduced european species, M. *aeneus* (L). Besides changes in concepts of generic values and names, four new specific names are proposed.

We need a better appraisal of the role played by Malachiidae in the balance of kinds in local ecology but details must come from field observers and from those who rear larvae. Knowlton records voracious destruction of aphids by species of *Collops* and predatism by various Malachiid larvae is generally understood but the report of serious injury to the yield of wheat in Europe by *Malachius aeneus* should by reappraised in our own wheat belt. This neglected 80-odd year old statement by Frauenfeld 1866 (Vehr. k. k. zoolog.-bot. Gesellsch. Wein vol. 16, p. 644) mentions beetles feeding upon anthers and pistols of the wheat at times of pollination thus preventing growth of the grains just as injury to corn silk by feeding Chrysomelids or jap beetles prevents growth of kernals on the ears of maiz. The rapid advance of M. *aeneus* through the wheat belt from New England almost to the Pacific Coast should permit study of its ecological role and appraisal of its probable effect upon our interests.

NEWS

Local papers carried a story a few weeks ago telling of a London Coleopterist who was jailed for the theft of 160 beetles from the British Museum (Natural History). This person is not a subscriber to the Bulletin. However, his address is listed in the last number of the Bulletin for 1948, and several of his papers have been listed in the current literature section in past issues. Apparently his enthusiasm exceeded his moral sense. His landlady stated, as an example of this great love for beetles, that though he has been married only a few months, he used to sit up half the night studying his collection. Perhaps some of our subscribers' wives are likewise neglected!

R. H. A.

SYNONYMS AND GENOTYPES

By Richard E. Blackwelder

In our catalogs and revisionary studies we frequently find generic synonymy like the following:

Hypotheticus Linné, 1758.
Subsequens Smith, 1908.

We understand this to mean that these two names have been applied to the same genus and are therefore synonyms. According to the dictionary synonyms are two or more names for the same thing, with all of them being called synonyms. By this definition *Hypotheticus* is as much a synonym as *Subsequens*. The important point is that it is the older one that is the proper one to be used. It is best to distinguish this correct one as the senior synonym, with the unaccepted one as a junior synonym.

In biology there are two quite distinct kinds of junior synonyms. There are some which were clearly proposed for the same genus (new names, stillborn synonyms, and names based on exactly the same species) and are therefore absolutely synonymous; they can never be separated by any means. These are called absolute synonyms, objective synonyms, or nomenclatural synonyms.

There are other synonyms that are synonyms only in the opinion of one or more student. One may lump the two genera into one, making the names synonyms; the other may split them into two genera, making both *names* correct. Synonyms that are thus based on opinion are called conditional synonyms, subjective synonyms, or zoological synonyms. The synonymy can be denied and removed at any time.

The first type we will call absolute synonyms. Their identity can never be questioned. The second type we will call conditional synonyms, since anyone may challenge the identity. Since the absolute synonyms are unchangeable, they give us little trouble and may be passed over here without further comment. The conditional synonyms alone will concern us in the following discussion.

In stating that these two names in the example above are conditional synonyms, the reviser is stating in effect that the species previously included under both are congeneric and therefore belong in a single genus. However, it may be that some of the species previously included under *Subsequens* belong in *Hypotheticus* and some do not. The reviser cannot apply the name *Subsequens* to both groups—as a synonym of *Hypotheticus* for one and as a separate genus for the other. There must be some means to determine which species the generic name will follow.

This is accomplished under the International Rules of Zoological Nomenclature by the use of the genotype principle. Every generic name is tied to one species, so that the assignment (on zoological grounds) of that species will determine the fate of the generic name. In our example, if the type of *Hypotheticus* is species 1 and that of *Subsequens* is species 7, it is merely necessary to determine whether these two species belong in one genus or not. If they do, then *Subsequens* is a junior synonym of *Hypotheticus*, regardless of what happens to any other species that have been placed under it. If not, then *Subsequens* applies to a distinct genus, regardless of the status of the other species assigned to either genus (or generic name). Thus, generic synonymy cannot be determined without use of the genotypes.

In dividing genera we again require some means of determining which group shall retain the name. For example, when it is found that the genus *Compositus*, with [illegible] species, actually contains two groups of species which deserve to be recognized as distinct genera (species 1 to 5 and 6 to 10), the original name must be retained for one of the groups.

Previously Spp. 1-10 = *Compositus* (in broad sense)
Now Spp. 1-5 = ? (*Compositus* s. str. or new genus)
Spp. 6-10 = ? (New genus or *Compositus* s. str.)

Under our Rules *Compositus* must be used for the group containing the particular species which is established as its type species or genotype. If species 4 is the genotype, then the name *Compositus* must be retained for the genus including species 4, or group 1-5.

It is thus necessary, and our Rules require, that each generic name have a genotype, to fix the application of that name. Then whenever any writer places a species in a particular genus, he is in effect stating his belief that that species is congeneric with the type species of that genus—that the two species belong in the same genus. Otherwise he would not put them together. In order to state that his species belong with the type species of this genus, he must know what the type species is and what its characteristics are. No generic transfer or assignment of a new species to a genus is much more than a guess unless the genotype is known and considered. For example, a writer describes a new species *albus,* and he places it in the genus *Exus* because he believes it belongs with *Exus niger* which is the genotype of *Exus.* If he does not know the genotype of *Exus,* his assignment of *albus* is little more than a guess.

If a writer believes that two genera are the same and cites the name of one as a synonym of the other, he is in effect stating that the genotype of one belongs in the same genus as the genotype of the other, because otherwise they cannot be synonyms. It is impossible to prove the synonymy of two names without using the genotypes of both, since the application of each name depends entirely on its genotype.

For example, if a writer states that *Exus* and *Zeeus* are synonyms because he has a species that is called *Zeeus* which he discovers belongs with a species that is put in *Exus,* his conclusion will be completely wrong UNLESS it happens that his species of *Exus* really DOES belong with the type species of *Exus* and his species of *Zeeus* really DOES belong with the type species of *Zeeus.* If either of these should happen not to be so, then his conclusion on generic synonymy will be worthless.

No writer should ever cite a generic name as a synonym of another generic name until he, or some previous writer whose work he accepts, has determined the genotypes and found that they belong in the same genus. Any synonymy proposed on any other basis is worthless so far as the generic names are concerned.

Furthermore, no writer should ever describe a new species in a genus whose genotype has not been determined and is believed to be congeneric with the new species. Otherwise the new species will later have to be restudied to see if it really does belong in the genus indicated.

The fact that these principles have generally been overlooked does not detract from their truth. The work of many taxonomists is known to be of doubtful accuracy because they did not consider the genotypes. Since there is little in taxonomy that can be safely done without use of genotypes, this is one of the most important subjects in nomenclature, as well as one of the most neglected.

Bibliographia

STUDIES ON THE DATES OF BOOKS ON COLEOPTERA. II.

By RICHARD E. BLACKWELDER

ERICHSON, W. F. 1837-1839. Die Kafer der Mark Brandenburg, vol. 1. Berlin.

Part	1	pp. 1-384	1837
	2	pp. 385-740	1839

ERICHSON, W. F. 1839-1840. Genera et species Staphylinorum insectorum coleopterorum familiae, 954 pp. Berlin.

Part	1	pp. 1-400	1839
	2	pp. 401-954	1840

HEER, O. 1838-1841. Fauna coleopterorum Helvetica, 652 pp., vol. 1, part 1. Turici.

Fasc.	1	pp. 1-144	1838
	2	pp. 145-360	1839
	3	pp. 361-652	1841

LAPORTE, F. L. (de CASTELNAU). 1834-1835. Etudes entomologiques, part 1, 159 pp. Paris.

Fasc.	1	pp. 1-94	1834
	2	pp. 95-159	1835

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BOOK REVIEWS

COLEOPTERA OR BEETLES EAST OF THE GREAT PLAINS, by J. Gordon Edwards, lithoprinted by Edwards Brothers, Ann Arbor, Michigan, 1949. $3.50.

This is one of the most interesting books that has come to my attention for some time. It embodies many new ideas in style and preparation and is worth careful study in this regard. The method of illustration, the "reversible" key, and the attempt at simplification of language are all to be praised, as is the general layout of the book and the indexing of it.

Unfortunately, it appears that Mr. Edwards' fresh approach to the classification of beetles has not been combined with a depth of understanding sufficient to avoid several serious and basic faults. Many of the general remarks on classification and all of those on nomenclature show a lack of experience in both taxonomy and the expression of ideas such as to detract seriously from the accuracy and usability of the book. It might be that these faults could be overlooked in the first edition of the book, but they are combined with a new and unbalanced treatment of families which is sure to be confusing to all users.

It is difficult to single out specific things to justify this appraisal. One paragraph in the introduction is headed "Changing Beetle Relationships." Surely there has never been any actual change in beetle relationships, but only changes in our understanding or beliefs about them. A transfer of a species to another family is referred to as a "phylogenetic change." It is nothing more than one man's opinion that his predecessor was wrong.

It is stated that the changing of scientific names of species "is a necessity occasioned by the International Laws of Nomenclature." It is true that a few changes of names are required because some writers have not kept their work in conformity with the International *Rules*, but these changes are usually caused not by the Rules but by the writers that neglect or have neglected them. Most changes of names are caused by changes in our knowledge of the insects, and cannot be prevented by rules or any other means.

Family names are said to have been changed because of priority; others to have been "officially accepted." Such statements are, of course, pure misconception or misuse of words, since priority has not been generally recognized as a criterion in family names, and none of these names have any "official" status whatever.

The explanation line under many family headings is a useful feature. It gives a clue to a previous status of the name. In certain cases, however, the wording is misleading. For example, under Alleculidae, "(A new name for old family Cistelidae)." It is not new here and was not originally proposed as a replacement for Cistelidae.

Again, under Passalidae, "(Formerly genus *Passalus* of family Lucanidae)." This is very startling but is probably true. Still it seems worse than useless in an elementary manual to dig up a century-old fact that can be of no use to any one and is definitely misleading.

On page 162 is given a "Phylogenetic List of Families . . ." that "indicates a progressive complexity of structure believed to represent their degrees of evolutionary development." It is difficult to see what is meant here, for it is obvious that no linear arrangement of families can show either phylogeny or the degree of evolutionary development. It can scarcely be maintained that the list shows relative complexity either of families or individuals. Some of the families listed show nearly as great range in specialization within themselves as the whole order shows.

We might use pages on such minor points as a 169 volume Junk Catalogue (actually 31 volumes), a Genera Insectorum which "covers the genera of beetles of the world" (actually only 65 parts are on beetles—only 27 families), words like foetogenesis omitted from the glossary, the family Staphylinidae said to be characterized by a habit which is actually exhibited only by part of one tribe, and inadequate definitions of many terms, such as caudad, oblique, prosternum, sternite, and ventro-cephalic.

The most important departure from previous books is in the classification, where an entirely new breakdown of families is employed without direct justification. The families Scarabaeidae, Chrysomelidae, and Curculionidae (especially) are broken up into several families which have usually been treated as subfamilies. Nearly all of these families have been previously used in this manner, but by authors who also used many others. For example, in the Scarabaeidae Edwards withdraws three groups leaving several equally distinct subfamilies untouched. In the Curculionidae, after the removal of twelve groups, the family is still said to be heterogeneous. And nothing whatever has been gained by the withdrawals, except to complicate the family listings. Similar elevations of subfamilies to family rank have been proposed by other workers in other groups, as in the Carabidae, but in this book they are not mentioned.

In short the classification is unbalanced, is not accompanied by justifications or reasons, and serves only to complicate. It does not make it easier to key out the families, since 291 couplets were required to key out 139 families. It does not help to show relationships but rather differences, except that the differences shown are not always the most important ones.

In addition to all this, the chief claim of the book, that the key will enable one to make positive identification, is not borne out by trials with several common beetles. This key differs in no fundamental way from other keys to Coleoptera, is no less scientific, is not simpler, and is equally dependent upon the judgment of the user. This does not mean that the key may not be an improvement over others. Its faults are caused by the same factors, the complexity of the order Coleoptera and the limitations of the author and his knowledge of the beetles.

It appears that these faults might be eliminated in a future edition by consultation with persons of wider experience. Until this is done there is too much chance that the shortcomings of the book will outweigh its advantages in their effect on the non-professional user.

R. E. B.

KAFER UND PILZE, by Otto Scheerpeltz and Karl Hôfler. 351 pages, 19 text figures, 9 plates (8 colored). Verlag fûr Jugend und Volk, Wien. Price, $5.40.

The fungus-inhabiting beetles in word and picture; the results of 35 collecting expeditions in one season in the vicinity of Vienna; and the fungi as a dwelling-place for beetles; these are the major topics of this unusual book.

The collections of beetles and fungus are carefully identified, with list of the species found on each excursion and lists of the beetles found in each species of fungus. The beetles are studied systematically, with descriptions and keys, the host fungi, distribution, and ecology.

Ecological analyses include discussion of biotopes, of the pH, smell, and taste of the fungi (chemically), of the sociology of the inhabitants, and of the succession of visitors to each species of fungus.

A bibliography of nearly 150 titles provides a major course of information on the entire subject of insect inhabitants of fungi, including systematic, geographic, ecologic, morphologic, and physiologic papers.

In addition the book is illustrated with two maps, one graph, 19 text figures containing 55 drawings, one plate of 10 figures showing beetle form as well as distinguishing characters, and 8 colored plates. The latter show 48 species of beetles and 24 species of fungus.

The systematic section reflects the lifelong interest of Dr. Scheerpeltz in staphylinid beetles. Keys for determination of the Central European species of six genera are given. In addition 8 new species and one new subgenus are described (7 species in *Atheta,* one in *Oxypoda;* the subgenus *Lepthartbrophaena* in *Gyrophaena*).

It is seldom that we have the pleasure of reviewing such a satisfactory book in a specialized subject. This one combines two widely separated fields, is the result of new and extensive researches, and is produced under high standards or publication. It seems like a miracle for such a book to be published in Austria in these difficult times.

R..E. B.

BOOK NOTICE

BATTLE OF THE BEETLES, *in* "High Jungle," Chap. 20, pp. 300-318, 6 ill., by William Beebe, 1949, Duell, Sloan & Pearce, N.Y., $4.50.

Dr. Beebe has exposed the intimate life of *Dynastes hercules* and *Megasoma elephas* to the general public in this fascinating chapter. This chapter must certainly be added to the references to these species in our catalogues and papers.

R. H. A.

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus*. I can offer German species of *Cicindela* and *Carabus*.. Would like to receive specimens of these genera from any place in the world. A. Korell, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. Darlington, Jr., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE—7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. Jolivet, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. Ira La Rivers, Biology Department, University of Nevada, Reno, Nev.

INSECT BOXES—For sale, 18 x 11¾ x 5 inch insect collection boxes. Pinning composition on each side. White liners on pinning bottoms. Latched and hinged. These are special boxes of which we have but a limited quantity. Sanded but not finished. $4.00 each. Bio Metal Associates, Box 346, Beverly Hills, Calif.

Histeridae—Can offer local material in nearly all families for Histeridae. David Verity, 690 Cuprien Way, Laguna Beach, Calif.

Pselaphidae—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. Theo. Telsch, 158 W. Spencer St., Philadelphia 20, Pa.

Passalidae—of the world, revising and will determine material from any part of the world. Can offer several families in exchange. W. D. Hincks, Department of Entomology, Manchester Museum, The University, Manchester 13, England.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

Carabidae—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

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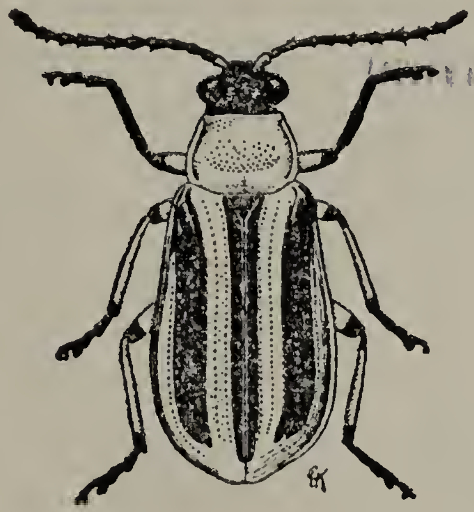

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THE COLEOPTERISTS' BULLETIN

The Coleopterists' Bulletin is published bimonthly. It is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

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Division of Insects, U. S. National Museum,
Washington 25, D. C.

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THE COLEOPTERISTS' BULLETIN

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THE REARING OF BUPRESTIDAE AND DELAYED EMERGENCE OF THEIR LARVAE

By Frank M. Beer

Oregon State College, Corvallis

During the winter and early spring months of 1933-34, the writer collected a large number of wood-boring insects by cutting them from their pupal cells as recommended by Mr. Burke (1). On various occasions larval material was discovered and this was taken home and given time to mature. At first the specimens were discarded if they did not emerge by early summer. Careful observation proved that not all had reached full development at the end of the first or even the second season, and so were set aside for a longer time. By 1940, the writer had come to wonder just how long some of the species would remain in the host plant before reaching maturity. Hence records were kept as the speimens emerged.

The earliest report of delayed emergence found in the literature is that by Huguenin (2), in which he reported a specimen of *Buprestis aurulenta* Linn. emerging from a 26-year-old door sill, which had been twice varnished and painted.

In 1924, Chamberlin (3) reported the same species emerging from a handrail after 9 years, and in 1930 Spencer (4) listed five cases of emergence from structural materials varying in age from 12 to 20 years. Probably the longest period of larval existence was reported by Dr. Van Dyke (5) who cited a case from Oakland, California, where emergence took place 30 years after lumber had been placed in use. In a more recent report by Dr. Linsley (6), citation of twelve cases of *Buprestis aurulenta* Linn. and *B. langi* Mann. from California are given, several of these emerging from protected places in buildings.

In the above cases, there has been the possibility that a female could have flown to the structure and oviposited after the building material had been put in place. True, in most cases this seems hardly probable, but *B. aurulenta* has been observed to oviposit in the darkness of wood piles, and during the summer of 1948 at Halfway, Ore., a female of *B. langi* was observed to crawl some distance into a lumber pile in search of a place to deposit her eggs, attempting to insert her ovipositor in the crevices between the boards. In addition, the writer has observed *B. langi* and *B. adjecta* LeC. ovipositing in crevices of old whitened, weatherbeaten Douglas fir logs in the vicinity of Silver Creek Falls, Marion County, Oregon, and on one afternoon took 17 *adjecta* on two such logs. Last August, 7 specimens of *B. gibbsi* LeC., all females, were taken while ovipositing on an old weatherbeaten Oregon white oak, five of them taken one afternoon. Dr. Knull (7) records a similar observation regarding *B. rufipes* Oliv. at Hummelstown, Pa. *B. gibbsi* seemed to especially choose a crack on the northwest side of the snag into which they would completely disappear. Careful scrutiny showed them to be ovipositing in the deepest part of the crack. From careful observation it would appear that some species of *Buprestis* do oviposit in hidden places away from the hot sun, and further that they will seek out dead, weathered timber in which to lay their eggs.

Two reports would seem to definitely confirm the fact that the larvae do live for many years in structural wood. E. Franz (8) in 1936 reported *B. aurulenta* as emerging from a piece of thirteen-year-old furniture in Germany made partially from wood imported from America, and Swezey (9) in 1942 reported the same species as emerging from Douglas fir flooring at Pati, Guam, the flooring having been sent from the Puget Sound area and put into use prior to 1915.

No reports have been made on Buprestidae other than the two species cited above, and it is the intent of this paper to give a few records from over 15 years of rearing some other genera in this family.

In March of 1937, the writer brought in some oak limbs *(Quercus garryana)* that had been extensively infested with Buprestid larvae. By 1941, three specimens of *Polycesta californica* LeC. had emerged, one in 1941, making at least five years that the insects had existed as a larva, since specimens present when collection was made were there at least from the previous summer. A specimen of this same species emerged from a section of quinine bush *(Garrya fremontia)* after four years time, the specimen being only about half normal length. It seems probable that more individuals would have emerged from the oak, but it was left behind in moving.

During August of 1939, a number of good sized sections of mountain mahogany *(Cercocarpus sp.)* was collected along the Little Salmon

River of Idaho and placed in sacks for rearing. Specimens of *Acmaeodera variegata* LeC. have emerged from this material each season with two exceptions through 1948, making nine years that some of the larvae existed in the wood. In July of 1941, several infested yucca stalks were collected at Pinion Flat in the San Jacinto Mountains in California. From these have emerged *Acmaeodera latiflava* Fall, the last specimen to emerge was in June of 1947. This last case is all the more unusual since the tissue of the yucca is very soft and porous.

There are several genera that appear not to be retarded by drying, such as *Chrysobothris, Melanophila* and *Anthaxia.* The larvae of several species of *Chrysobothris* have been brought in, some from desert plants that were extremely dry, and they matured in the usual time, though occasionally a little deformed. A good example of this is *C. edwardsii* Horn which was reared from dead, dry stems of ocotilla *(Fouquieria splendens)* taken at an elevation of around 4,000 feet above Indio in the San Jacinto Mountains, Riverside Co., Calif., and *C. artifasciata* LeC. reared from the dead root-stalk of the saltbush *(Atriplex* sp.) taken near the shore of Walker Lake in Nevada. This material was kept in a room where the temperature was about 68-70° F. during most of the day and where the wood remained very dry. Yet emergence was apparently not materially delayed. *C. dolata* Horn has also been reared from dead, dry limbs of Douglas fir with no apparent retardation.

An unusual observation was noted concerning *Melanophila consputa* LeC. In March of 1938, infested limbs of ponderosa pine were collected at Mariposa, California, from trees killed by a fire that had gone through the area during the late summer of 1937. Several of the limbs were split open at the scene and all specimens observed had already produced the pupal cell preparatory to transformation. Several sections of limbs were taken home and placed in a small barrel which had a fruit jar fitted into one end. During the late summer the specimens began emerging, and when no more appeared, the writer decided to see if other families of beetles might also be present. When some of the limbs were split open, however, a good number of the original larvae still remained in their pupal cells just as they were when found in mid-March. The limbs were again placed in the barrel and set aside for another season, and emergence of the remaining group took place during the following summer. Why they remained the additional time the writer is unable to explain, but certainly some of them suspended activity for an additional year. The limbs were stored in a garage and become very dry. Whether this had anything to do with the situation is not known.

On the other hand, the larvae of *Agrilus* seem not to survive drying, at least none have been reared from dried plant tissue. Very young larvae of this genus seem not to survive drying of the tissue even for a short period of time.

From the foregoing it would seem that drying of the wood tends to retard those species inhabiting solid heartwood and causes delay of emergence of the adult. It is doubtful if eight years would be required for normal emergence in nature. On the other hand, some species inhabiting the cambium or sapwood are not noticeably delayed while others are killed by the drying. Further study of additional material and that at hand will undoubtedly provide further information concerning this retardation of emergence, and also reveal longer periods of delay.

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THE COLEOPTERISTS' SOCIETY

The first society of Coleopterists in the New World was formed on October 12, 1949 at a meeting held in the Thomas Lincoln Casey Room of the National Museum. The purpose of this society is to encourage the study of beetles by providing an outlet for publication and aiding research workers, students, and amateurs. A temporary constitution was adopted and temporary officers elected, pending increased membership and the first general election.

All subscribers and interested persons have received, or will soon receive detailed information and copies of the constitution by mail. Briefly, membership is open to any interested person, and any recognized member may hold office. The regular membership fee is $1.00 per year, and the supporting membership fee is $5.00. THE COLEOPTERISTS'

BULLETIN is the official publication; the subscription price to regular members remains the same, $1.25 per volume. The price to non-members and institutions is $2.50 per volume. Supporting members receive the BULLETIN free of charge, and a special rate to student members is 50c per volume provided application is made on a special form provided.

Persons interested in this society should address all inquiries to MR. GEORGE B. VOGT, *Secretary*, THE COLEOPTERISTS' SOCIETY, Division of Insects, U. S. National Museum, Washington 25, D. C.

R. H. A.

LOCALITY LABELS*

By ROSS H. ARNETT, JR.

For the past several months I have been intermittently engaged in sorting and arranging a large collection of one family of beetles representing the accumulation from many sources and over a great period of years. Such a collection should be arranged in some orderly way so that the material may be easily referred to by any person without the aid of the curator and it should be in units of a convenient size. For that reason I have arranged it by dividing it into geographical sections about as we usually study material when revising. For instance, North America, Central America, West Indies, South America, etc. I am not recommending that this is the ideal way for every family. It depends on the size of the family and the object of the collection.

One of the greatest problems in arranging such a miscellaneous mass of material as this is the interpretation of the locality labels. I became greatly impressed with the inadequacy of the majority of labeling. A young aid remarked one day with some disgust, "These foreign collectors never put the country on their locality labels." I asked him to show me a single locality label on a specimen collected in this country by an American collector which had "U.S.A." on it. Yet we exchange with foreign collectors and complain bitterly over the lack of information on the material which we receive in return.

Perhaps we can presuppose a fairly complete knowledge of geography, but I dare say few of us possess anywhere near the knowledge necessary to recognize even the general area of many of the places given on the majority of the foreign labels we have to read, unless they were collected by people not residing in that particular area. We seem to label specimens according to our particular knowledge and disregard the fact that the specimen will last long after we have gone to our reward. How we love to use such names as "Duck Lake" or "Anjo P., W. Aust." Find those in an atlas! And it is not restricted to the old labels or to the foreign collectors by any means. We are all guilty of it.

---

*See Hatch, M. H., 1948, "Why Locality Labels", Col. Bul., 2:76, for further information on this subject.

There are probably many reasons for these poor labels. Primarily, I believe the reasons for such abbreviated data notations is the small space into which we find it necessary to crowd this information. Secondarily, it is the relatively high cost of printed labels and the great amount of labor necessary to print by hand a series of labels. However, when we consider the time which can be wasted in trying to work with inadequate labels, I feel sure that we can economically afford to spend more time when we label our catches. If it is worth catching and mounting carefully, it is justifiable to spend time on the labels.

There is another excuse offered by many of our collectors. Many of us feel that a large label is a very bad thing. It takes up more room in a box and it might damage adjoining specimens while being pinned into a box. This is a valid objection. That is, until we look at the reasons for maintaining a collection. When we realize that the object is not to see how small and brief we can write a label and how close we can cram specimens into a box and how many specimens we can accumulate, but rather, how carefully we can preserve the results of our field experiences and how fully we can record our data on the specimens so that we may couple our and others' field results with the laboratory studies. If we have inadequate storage facilities, or labeling facilities, or lack the time to handle the material properly, then perhaps we should leave this material in the field. It will always be available when we can use it, perhaps not to us, but to someone. Please understand, I am not advocating that we all stop collecting and work only on museum material; far from it. Certainly we need more and more material, but what we DON'T NEED is more material like we already have!

If the situation is really as bad as I have intimated above, then I am certainly going to be expected to offer some cure for this situation.

I am sure that many collectors have been faced with this problem many times before and have given it serious thought. Frequent attempts have been made to use numbers coupled with field notes, or locality data and numbers referring to more detailed field notes. The lot number system should be outlawed immediately. Notes get lost, and people get lazy when it comes to transferring notes along with exchanges and loans. Locality data and numbers referring to further notes might be permissible, but that does not remedy our basic criticisms,—the deficiency in labels when it is necessary to arrange a collection.

Certainly then, it is necessary to devise some system of getting on to a label of a relatively small size, all of the information necessary to the worker at least in sorting and arranging material and in citing locality data in publications. In devising such a system we must keep two prime factors in mind. The locality information must give enough information to place an area in the worker's mind by using a word which is familiar to the person with the normal amount of geographical knowledge and then give a specific locality which can be found in any reasonably good atlas. This can then be supplemented by any additional information necessary to place the specimen in the exact location. Idealistically, names should be used which are not affected by politics or other changing conditions. I am unaware of any standardized set of geographical names which could be used by collectors the world over regardless of native tongue or social changes. It would certainly be most desirable for the geographers to give us such a set of names in sufficient detail to be of use to us. We could then cite localities the same as we cite Latin names of plants and animals. It could well be that in order to place the specimen exactly, latitude and longuitude figures would be necessary. Those of us who are used to three or at most four line labels are certainly not going to be receptive to these suggestions. Yet, I believe all will agree to the original thesis that our labels are inadequate and I at least fail to see how the situation can be improved without more detailed labels.

Inasmuch as we do not now have a standardized geographical nomenclature, we must for the time being be content with improving our present system. Let me summarize by offering these suggestions as to how we can do this.

(1.) The name of the country or similar large area on the label first. Ex.: BRASIL, CENTRAL EUROPE, JAVA, MICRONESIA, etc.

(2.) The state, province, department, or some such minor division second. Ex.: N. Y., Orleans Co.; France, Normandie; China, Fukien Prov.

(3.) The name of the nearest town, or mountain, or river which can be found in an atlas, with directions from that place. Ex.: 20 mi. NNW Arlington; 3,000 ft. NE side White Mt.

(4.) Perhaps the latitude and longitude if necessary.

The date of the collection, the collector's name and the situation in which collected are customarily included with the locality label, but will have to be on a separate label if the above system is followed. The locality label will then become truly a locality label.

SIZE OF McCLAY COLLECTION

Some months ago we asked people to report the size of collections. One or two such reports were published, but little interest has been shown by the majority of our readers. Of course, the number of specimens in a collection is not as important as the condition of the collection, the accuracy of the locality data and the amount of host or situation information that collection offers. But I believe that information of this sort is valuable to the research worker as a further source for material for revisional studies.

Recently I have obtained from A. T. McClay, information as to the size of his personal collection of beetles. I feel that I should preface his figures with some remarks on the excellent quality of his specimens. Dr. McClay was kind enough to loan me his specimens of Oedemeridae for study when I was making my recent revision of the North American species (in press). I found in several cases, long, well mounted series of species known previously only from the type specimens. The locality information greatly increased our knowledge of the distribution of these species.

I know that Dr. McClay is anxious for qualified persons to make use of this material and to give him identifications of those groups in which he is not actively doing research studies. That is of course the only valid reason for maintaining a collection of this sort. I also know that very few persons have taken advantage of Dr. McClay's generosity. I hope this recommendation will result in the mutual benefit of both Dr. McClay and the revisors concerned and I also hope that those who do take this advantage do not ask to borrow material unless they expect to be able to return it within a reasonable time and take the proper steps to keep it in good condition while it is borrowed. As we all know, it takes a lot of time to collect, mount and label insect material. It costs a great deal to store such material. The greatest respect should be extended to persons who are willing to spend their time in such pursuits and then loan it to others to reap the benefits from studying such material.

The McClay Collection contains 5,250 determined species, 96,000 determined and 233,000 undetermined specimens, making a total of 329,000 in all. Dr. McClay offers 700 species for exchange. The names of those species are available from Dr. McClay upon request.

R. H. A.

A METHOD OF CLEANING INSECTS FOR STUDY

By Harry G. Nelson

Hull Zoological Laboratory, University of Chicago, and Chicago City Junior College, Herzl Branch

In attempting to prepare large series of species of Elmidae for a study of morphological variation, difficulty was encountered in cleaning the specimens. Most individuals of this group, and of other families in the DRYOPOIDEA, have an encrustation over much or all of the integument when collected. This coating varies, depending upon the materials in solution in the waters in which these insects live. The thickness and extent of the deposition varies in different genera; causes of this variation are incompletely understood. Even the thinnest layer, however, may be sufficient to mask the characters which are of significance in taxonomic work.

Because no adequate method of cleaning has been available, most of the specimens in collections, including type material, are badly encrusted. As a result, the identification of species has been consistently poor, particularly if comparison with types has not been possible. There is no question but that the unsatisfactory state of taxonomic knowledge which has prevailed until recently in these groups has in large measure been due to the failure of workers to clean their specimens adequately. This may have been due to unsatisfactory working conditions, lack of recognition of the problem, or too high a regard for the integrity of the specimen as it comes from the field. In any case the result has been a muddled taxonomy and poorly organized collections. Keys based upon specific descriptions which utilize only the few characters discernible through the mud or pitch-like accumulations generally have been unsatisfactory. Attempts to use these keys to identify specimens which are in no condition to be studied have resulted in identifications and records that are of little or no value.

Reference to the literature and suggestions by various individuals did not directly advance the solution to this problem. The author's first attempts involved the use of minuten nadeln, curved at the tip to prevent scratching. These tests, performed in 70% alcohol, were moderately successful in that some of the coating was scraped off, but the method was time consuming and not infrequently resulted in damaging the specimens. Moreover, the pitch-like layer sometimes encountered is impervious to this attack.

It was thought that a brush might prove to be more effective. Satisfactory results were ultimately obtained by using a small inexpensive paint brush, the metal tip of which is at most one and one-half millimeters in diameter. Either round or flat-tipped brushes can be turned into useful working tools. At normal length, the bristles are much too flexible and even when cut to a length of a millimeter often do not give a firm enough working surface. However, by beveling the metal tip which holds the bristles with a three-cornered file or hone under the microscope, the shortened fibers are crowded together. This results in an adequate tool with the added advantage that the beveled tip materially improves visibility while working.

Having a good brush, however, is usually not sufficient. The encrustation must be loosened before it will yield easily to the necessarily light brushing. Acetone, ether, and Barber's Relaxing Fluid (Valentine, J. M., Jour. Elisha Mitchell Scientific Soc., 50, 1934, pp.255-262.), were found to be of no value. It had been reported (Van Cleave, H. J. and J. A. Ross, Science, 105, 1947, p.318.), that tri-sodium-phosphate (known commercially as "T.S.P."), was quite effective in softening long dried materials once preserved in fluid fixatives. "T.S.P." is one of the most inexpensive and effective detergents for household and industrial use. These facts suggested that it might prove valuable in this particular problem. In weak solution, however, the results were but little better than without the treatment.

It must be confessed at this point that the resolution of the difficulties sprang from a fortunate coincidence of events. While experimenting with T.S.P. in the laboratory, the author was using a new collecting fluid in the field. Hinton (Trans. Roy. Ent. Soc. London, 90, 1940, pp.375-409.), recommends Pampel's Fluid (see

Imms, A. D., Nature, 144, 1939, pp.599-600.), as a preservative for insects where a study of internal anatomy is to be made. It was discovered that specimens which had been collected in Pampel's Fluid cleaned amazingly well after being subjected to a 20-30 minute bath in a solution of T.S.P.

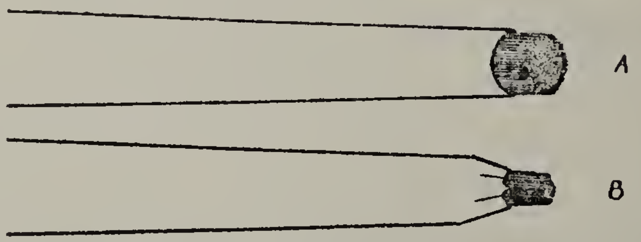
The concentration of tri-sodium-phosphate used need not be precise. A small pinch in a Syracuse dish with enough warm tap water added so as to cover the specimens yields good results. T.S.P. is not soluble in alcohol. Specimens may be left in the solution for a few days without bacterial action or undue softening of body tissues taking place. Other detergents have been tried but most are not as effective.

Slight modifications of the procedure are necessary if the insects have been collected dry or in alcohol, or have been mounted in an uncleaned condition. Good results can be obtained if the specimens are given a bath for 20-30 minutes in a 5-10% solution of glacial acetic acid *prior* to treatment with T.S.P. This finding suggests that acetic acid, one of the ingredients of Pampel's Fluid, loosens binding agents in the deposit, thus allowing tri-sodium-phosphate to dissociate the remainder. The time required in either of the solutions may vary somewhat depending upon the kind or amount of the sediment. Dry specimens should be relaxed in Barber's Fluid before handling.

After soaking, the actual cleaning process involves a certain amount of manual dexterity, especially in the case of the smaller insects. While the specimen is held with a pair of fine forceps in the T.S.P. solution, it is brushed under the microscope. The encrustation floats easily away and when clean the insect may be rinsed in 70% alcohol and is ready for mounting. The tri-sodium-phosphate solution has not been observed to harm forceps although Pampel's Fluid or acetic acid will cause rusting.

This method of cleaning specimens has proven useful for other Coleoptera such as certain Histeridae and specimens of the weevil genus *Microcryptorhynchus*. The latter insects are as badly encrusted as any the author has seen and in spite of their small size clean readily. The technique works well for Hemiptera such as aradids which are often covered with dirt, and also for many types of insect larvae whether aquatic or terrestrial. It seems likely that any insect which is heavily enough sclerotized to withstand the brushing can be cleaned satisfactorily.

Pampel's Fluid	*parts*	*Barber's Relaxing Fluid*	*parts*
distilled water	30	distilled water	245
95% ethyl alcohol	15	95% ethyl alcohol	265
glacial acetic acid	4	ethyl acetate	95
formaldehyde (40%)	6	benzol (benzene)	35
	55		640



A. View of brush tip with the fibers cut to a length of about 0.75 mm.
B. Brush tip after beveling. The metal bristle holder is crimped inward, thus crowding the bristles together.

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This interesting addition to the available directories of naturalists contains the names, addresses, and specialties of more than 1,000 naturalists of Latin America, many of them entomologists, arranged by countries and states. There is also a list of the institutions and publications in each state.

Copies may be obtained from the editors at Obligado 1555, Buenos Aires, Argentina. The advanced price was $2.00, but the present selling price is not indicated on the published copy. (See Col. Bul., vol. 2, p. 72 for other details.) R. H. A.

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

DISCOUNT SALE TO CLEAR INVENTORY, Bio Metal Associates, Box 346, Beverly Hills, California. Pins, boxes, drawers, cages. Limited qauntities so write for list immediately.

CHANGE OF ADDRESS—Effective October 1, 1949, old address: P.O. Box 159, North Chicago, Ill. NEW ADDRESS: Sunbright, Tennessee. Bernard Benesh.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus.* I can offer German species of *Cicindela* and *Carabus..* Would like to receive specimens of these genera from any place in the world. A. Korell, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. Darlington, Jr., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE—7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. Jolivet, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. Ira La Rivers, Biology Department, University of Nevada, Reno, Nev.

INSECT BOXES—For sale, 18 x 11¾ x 5 inch insect collection boxes. Pinning composition on each side. White liners on pinning bottoms. Latched and hinged. These are special boxes of which we have but a limited quantity. Sanded but not finished. $4.00 each. Bio Metal Associates, Box 346, Beverly Hills, Calif.

Histeridae—Can offer local material in nearly all families for Histeridae. David Verity, 690 Cuprien Way, Laguna Beach, Calif.

Pselaphidae—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. Theo. Telsch, 158 W. Spencer St., Philadelphia 20, Pa.

Passalidae—of the world, revising and will determine material from any part of the world. Can offer several families in exchange. W. D. Hincks, Department of Entomology, Manchester Museum, The University, Manchester 13, England.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

Carabidae—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

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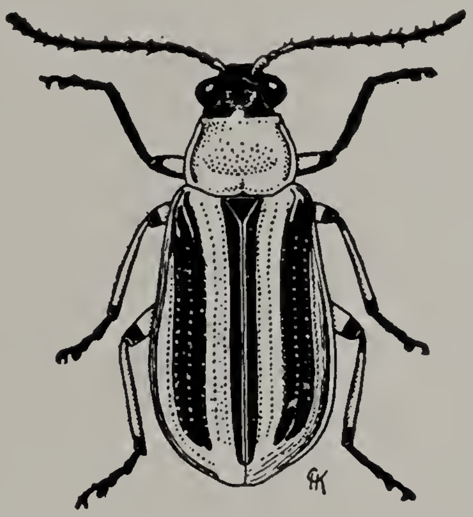

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The Coleopterists' Society was founded on October 12, 1949, to increase interest in the insect order Coleoptera and to improve the study of it, by promoting research, providing for publication, and encouraging cooperation among students.

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The Coleopterists' Bulletin is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

Manuscripts should be prepared to conform to the style used in the Bulletin and to announcements of style therein. They should be typewritten, double-spaced. All manuscripts should be sent to the editor.

Illustrations will be accepted if suitable and adequate. No charge will be made unless the cost is deemed excessive.

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February 13, 1950

To Members of the
Coleopterists' Society

In the three months since the organization of the Coleopterists' Society, 105 coleopterists have joined the society, giving it a real substance and foundation. As president, I welcome you to the Society and express the appreciation of the organizers in your willingness to join them in this venture.

The Coleopterists' Bulletin has evidently filled a want. In order to make more secure the Bulletin's hold on life, it was decided to give it the substantial backing afforded by an organized society. We hope that you will help to make the Bulletin a success by sending your constructive criticism as well as your manuscripts.

Sincerely yours,
(Signed) EDWARD A. CHAPIN,
President.

MORE ABOUT "THE HOME OF HORMOPS"

(Curculionidae-Cossoninae)

By FRANK N. YOUNG
Indiana University, Bloomington

The exact habitat of the unusual weevil *Hormops abducens* LeConte has never been satisfactorily determined. Most specimens known have been taken by random methods of collecting and have no exact data accompanying them. Blatchley[1] describes what he considered "the home of *Hormops*" in Skinner's Hammock near Dunedin, Florida, as ". . . a large bunch of dead leaves and small twigs whose base, about 8 feet above the ground, was supported by a tangle of branches and vines." He makes no further comment on the nature of this mass of leaves and twigs, but the description fits that of an outside nest of the fox squirrel, *Sciurus niger niger* L., a common arboreal mammal over much of northern and central Florida.

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[1] Blatchley, W. S. The home of Hormops and its proper position among other Rhynchophora. Journ. New York Ent. Soc., vol. 26, pp. 155-161. 1918.

In the spring of 1947 Mr. J. C. Moore discovered a number of small weevils in fox squirrel nests on the University of Florida Conservation Reserve, Welaka, Florida. Part of these were kindly determined for us by Mr. L. L. Buchanan of the Division of Insect Identification, U.S.D.A., as *Hormops abducens* LeConte. The presence of *Hormops* in the biotic assemblage of the fox squirrel nest is most interesting and suggests that Blatchley might also have found such a nest. At Welaka the nests were found in trees in the Turkey Oak—Long Leaf Pine sandhills,—quite a different habitat from the mesic or perhaps hydric evergreen hammock near Dunedin. This great difference in vegetational association may indicate that *Hormops* is a facultative or even obligate commensal of the fox squirrel.

At present, nothing is known of the role of any of the beetles found in the nests, but further work is being undertaken on the assemblage both in Florida and Indiana. The fact that *Hormops latipennis* described from Texas by Casey is from a region occupied by a distinct subspecies of fox squirrel offers alluring possibilities if the nests of these mammals are really "the home of *Hormops*."

IN MEMORIAM

We record with regret the death of a beloved American coleopterist. Alan S. Nicolay died suddenly at his home on January 29, 1950. He was an ardent collector and a frequent visitor at eastern museums, where he was always very welcome.

We hope to publish a biographical sketch and bibliography in our next issue.

R. E. B.

REMARKS ON THE OCCURRENCE OF BUPRESTID LARVAE IN SAWN LUMBER

By Richard Guppy
Wellington, B. C.

A good many articles have been written presenting evidence of long larval life and delayed emergence of Buprestidae, usually *Buprestis aurulenta*. While I do not pretend to offer evidence which would discredit these claims, I do think that not enough has been published presenting the opposite views; that is, observations which tend to prove that Buprestidae do oviposit and breed, generation after generation, in long dead wood, and often in prepared timbers.

It is often assumed, when adult beetles emerge from timbers or walls of buildings, that the larvae must have been in the log when the latter was cut up. Various reasons are given as an excuse for this assumption, the commonest being that the young larvae must have sapwood to feed on at first. *Buprestis aurulenta*, the species which figures most often in these accounts, actually seems seldom to oviposit in any wood unless it is dead and thoroughly dried. Multitudes of other beetles, including, to give only one example, the species of the great genus *Anoplodera* of the Cerambycidae, breed habitually in wood that has been so long dead that often the sap wood has entirely rotted away. Another argument for supposing that the wood did not become infested after being used in construction is based on the idea that the beetles will not oviposit except in bright sunshine. Beer (Col. Bull., vol. 3, pp. 81-84, 1949) sets forth some evidence to show that this objection is not too well founded. Besides, it must be only in very rare cases that it can be shown that the sun could never shine on any part of a timber, or on any adjacent timber from which the larva could have transferred itself.

Buprestidae have been many times observed ovipositing, or attempting to oviposit, in cracks in old dried timber and sawn boards. Spencer (Proc. Ent. Soc. British Columbia, vol. 27, p. 6, 1930), while citing some of these instances, makes much of the possibility that the beetles might have been merely going through the motions. While this may, at the time, have been commendable scientific caution, with so much accumulated evidence, often involving many beetles at one time, further doubt can hardly be justified. One example of my own observations I will add at this time: I once noted a female *Buprestis aurulenta* attempting to find a place for ovipositing in the door casing of a newly erected house. The insect was apparently not in the least deterred by the fact that the woodwork had recently been painted a brilliant red.

It is surprising to me that in every article I have read on the subject the most obvious piece of evidence has been completely overlooked. Wood boring larvae never, until ready to emerge as adult insects, break through the outer layers of the wood they inhabit. They are evidently able, in some way, to detect the proximity of the outer air in time, and never make the mistake of breaking through. Now it is clear that if an infested log be cut up into structural timbers, many burrows will be exposed by the saw cut. It is possible, but not likely, that a lightly infested log might be cut into heavy timbers without exposing many borings. To cut a log into boards hardly more than half an inch in thickness, without bringing to light a single boring, would seem nearly certain proof that the log was not infested. Yet I have seen dozens of such boards, liberally sprinkled with the exit holes left by adult beetles, not one of which showed the least sign of larval workings on the surface of the wood.

There is some reason for believing that Buprestidae often oviposit in the same wood from which they emerge, rather than bother to search for fresh breeding places. The basis for this idea lies in the fact that some buildings seem to be always infested, while others remain free. I have several times heard people remark that "such-and-such house has 'wedding beetles' in the floor." As some beetles emerge nearly every year, those who hold that the larvae were in the wood when the building was erected, must suppose that the length of larval life varies very greatly in different individuals, under identical conditions.

I am able to report first hand on this particular aspect of the discussion, since my own house is infested with two species. For at least the last five or six of the ten years I have lived here, specimens of *Buprestis aurulenta* have turned up in the attic during the spring and summer. The holes from which the beetles emerged are always easily found, in the fir shiplap which serves as a floor. As mentioned above, there is no evidence in any of these boards that they were infested before being manufactured. The house is between fifteen and twenty years old. Some beetles have bored their way out from the end walls of the house through red cedar siding which overlies the fir shiplap sheathing. Another appeared in a ground floor room, having made a neat hole through the papered ceiling.

During the last two seasons I found a few specimens of *Chrysophana placida* also in the attic. Whether these actually bred in the woodwork remained in doubt until recently. Last autumn, having undertaken to paint the house, I was afforded the opportunity of examining the whole exterior. In the area around the south attic window I noticed a great number of small exit holes, evidently the work of *C. placida.* I am not aware of the usual host species of *C. placida,* but I presume that these, like the *Buprestis,* had fed in the fir shiplap and on reaching maturity had drilled straight out through the cedar siding.

I have been able to observe many other instances of prepared lumber of different sizes harboring Buprestid larvae. The spectacle of bridges and wharves riddled with their exit holes is common enough; in fact I think that nearly all such structures are more or less heavily infested. On two occasions I have found larvae in small bits of packing case wood hardly thick enough to afford space for the burrows. One of these cases merits mention in greater detail. The piece of wood in question, about 2x6¼ inches had been used as a plaything by a child, immersed in seawater a good part of the time. It was later left on a shelf in my kitchen. Months later, noticing some dust dropping from it, I placed it in a can. Next spring, no beetle having shown up, I broke the wood and found it only a thin shell full of dust. It contained a single partly grown Buprestid larva. I do not think I need to enlarge on the improbability of this larva having been in the log from which, after many travels and no doubt some lapse of time, this scrap of wood eventually reached my kitchen.

While I could add a great deal more to the above observations, I feel that enough has been said to prove my point, that the existence of Buprestid larvae in sawn lumber is a commonplace occurrence. Also that, in cases of beetles emerging from timbers imported to countries to which the species is not native, the possibility of those insects being the second or even the third generation, must be considered before definite conclusions can be drawn.

AFFILIATION WITH THE SSZ

On December 16, 1949, the newly-formed Coleopterists' Society applied for affiliation with the only-slightly-older Society of Systematic Zoology. We are informed that the council of the SSZ accepted the application at its December 28th meeting.

Because of the youth of both these societies it is difficult to foresee what specific advantages may result from this affiliation. The SSZ has over 550 members, scattered through the entire field of systematic zoology, and may well reach its goal of 1000 members. The influence of this society should be considerable, and the specialized societies like ours should find it profitable to keep in touch. We may also be able to aid the SSZ in its programs for improving the practice and teaching of taxonomy and the status of taxonomists.

G. B. V., *Sec'y.*

THE PROGRAMS OF THE SOCIETY OF SYSTEMATIC ZOOLOGY

There are many organizations of zoologists interested in particular groups of animals or particular aspects of natural history. Among the former the Coleopterists' Society was recently formed to fill a hitherto neglected niche, and among the latter we have such organizations as the Ecological Society of America and the Society for the Study of Evolution.

In all of zoology (all of biology, in fact) there is one subject which is basic, which is fundamental to all the others, which frequently is of prime importance in preparing the foundations for research in other fields. This is the broad field of systematics. It is a primary branch of zoology, dealing with the most fundamental laws, and divided into many subjects which we often think of as unrelated. It includes evolution, geographic distribution, geologic distribution, anatomy, morphology, embryology, life history, classification, descriptive taxonomy, and nomenclature, as well as portions of genetics, ecology, limnology, oceanography, paleontology, and other fields.

In all these subjects, zoologists working on very different groups of animals make use of the same principles, the same theories, and often the same practices. A large number of zoologists thus have a common meeting ground in systematics, but ever since specialization became widespread in zoology, particularly specialization as to the group of animals studied, there has been no organization which attempted to coordinate the systematic work of zoologists or to improve the teaching and practice of systematics. This is the gap in our long list of zoologic societies that led in 1948 to the formation of the Society of Systematic Zoology.

Although there was widespread recognition of the need for such an organization to bring together taxonomists in all fields and promote their joint interests, there was no precedent to aid in formulating a concrete program for the new society. Now, after two years of organization and shake-down, it is possible to see specific ways in which this union of taxonomists may be of great value to working zoologists and to students desiring to become taxonomists. Only a few of these projects are as yet under way, with others now in preparation. Still others may be undertaken as the need arises, at the suggestion of taxonomists. Some of the projects now under study are described below.

Three general types of projects are occupying the attention of the Society: Major projects leading toward specific concrete results (numbers 1-3 below), more general projects for long-term activities (numbers 4-8), and miscellaneous activities of service or interest to taxonomists (numbers 9-13).

1. TEXTBOOK OF SYSTEMATIC ZOOLOGY. The Committee on Education and Instruction in Systematic Zoology has made a study of the training of taxonomists and the needs of education and individual training. Their first definite proposal is that the SSZ sponsor the preparation of a textbook of systematic zoology to help fill a basic and long-felt need in both teaching and research. The committee was authorized to proceed and will cooperate as fully as possible with persons interested in this project or already working in it. This program will take several years to complete.

2. JOURNAL FOR PRINCIPLES OF SYSTEMATIC ZOOLOGY. The Council of the SSZ has postponed action on the proposal to establish a regular journal for non-descriptive papers, but there is widespread feeling that this is one of the ''musts'' for the Society.

3. NEWS LETTERS. Experience gained from the publication of the first news letter has led the council to direct that the News Letter in the future contain principally the records of the Society and its activities, and that if possible it be published twice a year,—in the spring and fall.

4. FAUNAL HANDBOOKS. An elaborate study was made by the Committee on Faunal Handbooks to determine the adequateness of existing handbooks throughout the animal kingdom. A very detailed report was made at the 1949 annual meeting. This project is being continued and may well lead to sponsorship of new handbooks by the society.

5. ZOOLOGICAL RECORD. The Society desires to help make the Record as useful as possible. It is indispensable to taxonomists and should receive their support. The Committee for Cooperation with the Abstracting Journals has made arrangements to act as sales agent for the Record in the United States and urges zoologists to subscribe to the section relating to their field of interest. Other means are being sought for aiding the Record and improving its usefulness.

6. STANDARDIZATION. Many practices, terminologies, and presentations can be made more useful through uniformity by agreement. The Committee on Policy, Standards, and Principles has discussed several possibilities and is continuing this work.

7. DISSEMINATION OF INFORMATION. The society has already undertaken several projects along this line. The News Letters are intended to keep the members posted on certain types of information, such as the committees of the society, its members, and their activities. The annual meetings are now being planned to contribute to this aspect, and contacts with the affiliated societies may provide a means of spreading useful information about taxonomy.

8. CURRENT RESEARCH PROJECTS. The Publication Committee last year undertook to assemble a list of the current research projects of all taxonomists who could be reached by a hastily assembled organization of subcommittees. The resulting list was published in the first news letter.

9. SYMPOSIA AT ANNUAL MEETINGS. The council instructed the Secretary to attempt to arrange a symposium-type of meeting at Cleveland, Ohio, in December 1950. Tentative plans now call for a two-hour session of three invited papers on a subject concerned with the importance of taxonomy to zoology in general. If this meeting is a success, open sessions for papers on general systematic subjects will be arranged for future meetings.

10. IDENTIFICATION SERVICE. The Committee on Information hopes to provide means for zoologists to get aid in the identification of zoologic material. In some fields this service

is already available, and the society's membership applications give some information on the availability of help from individuals. Further work on this is necessary before the society can announce an actual identification service.

11. COPYRIGHT OF OPINIONS OF THE ICZN. It has been brought to the attention of the council that the claim by the International Commission on Zoological Nomenclature that it has a copyright on its publications, and its refusal to permit reprinting of the summaries of recent Opinions, has already twice resulted in the elimination of these worthwhile items from a general reference book on taxonomic methods. The council is considering the possibility of asking the Society to express its views on this subject.

12. MICROFILM PUBLICATION OF NEW NAMES. A new service to colleges and individuals has been in operation for several years by a midwestern company for the microfilming of doctoral dissertations and monographs. A microfilm copy is placed in the university's library, another in the Library of Congress for copyright, and the negative is then stored. An abstract is published, with notice of the price at which microfilm copies can be obtained. At least one systematic paper with new species has been so handled. Is this publication? The society will be asked to seek either to have the practice recognized under the International Rules or discouraged.

13. NOMENCLATURE CONTROVERSY. Because of lack of information on the current controversy over the actions at Paris, the council has postponed any decision. All interested persons are invited to submit pertinent information which might aid the council to take a stand for the society.

The SSZ now has over 550 members among zoologists and paleontologists. It invites application for membership from all persons who are interested in any phase of systematic zoology. The dues are only $1.00 per year.

Society of Systematic Zoology
R. E. Blackwelder, *Sec'y.*

Bibliographia

INDEX TO FAMILIES OF BEETLES IN THE BIOLOGIA CENTRALI-AMERICANA

By R. E. Blackwelder

The following list is intended to serve two purposes. It is an alphabetical index to the families and a key to the dates of publication of the pages.

Some slight changes in arrangement have been made in the families to make reference easier. Thus "families" of Phytophaga are listed as subfamilies of Chrysomelidae. Any families not found in this list should be sought for within the family with which they would have been associated at the time of publication of this work.

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Anthicidae. G. C. Champion, vol. IV, pt. 2, pp. 190-250 (1890); 461-462 (1893).
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Bostrychidae. H. S. Gorham, vol. III, pt. 2, pp. 210-218 (1883); 352-354 (1886).
Brenthidae. D. Sharp, vol. IV, pt. 6, pp. 1-80 (1895); 384 (1907).
Bruchidae. D. Sharp, vol. V, pp. 437-504 (1885).
Buprestidae. C. O. Waterhouse, vol. III, pt. 1, pp. 1-32 (1882); 33-48 (1887); 49-192 (1889); 193 (1890); 663-667 (1897).
Byrrhidae. D. Sharp, vol. II, pt. 1, pp. 670-688 (1902); 689-690 (1905).
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    Lamiinae. H. W. Bates, vol. V, pp. 91-152 (1880); 153-224 (1881); 334-436 (1885).
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Clythrinae. M. Jacoby, vol. VI, pt. 1, pp. 26-37 (1880). Vol. VI, pt. 1 Suppl., pp. 65-80 (1888); 81-91 (1889).

Criocerinae. M. Jacoby, vol. VI, pt. 1, pp. 2-19 (1880). Vol. VI, pt. 1 Suppl., pp. 8-57 (1888); 341-343 (1892).

Cryptocephalinae. M. Jacoby, vol. VI, pt. 1, pp. 38-72 (1880); 73 (1881). Vol. VI, pt. 1 Suppl., pp. 91-154 (1889); 344, 348 (1892).

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Eumopinae. M. Jacoby, vol. VI, pt. 1, pp. 105-144 (1881); 145-187 (1882). Vol. VI, pt. 1 Suppl., pp. 183-232 (1890); 233-241 (1891); 344 (1892).

Halticinae. M. Jacoby, vol. VI, pt. 1, pp. 263-264 (1883); 265-336 (1884); 337-408 (1885); 409-476 (1886). Vol. VI, pt. 1 Suppl., pp. 258-312 (1891); 313-324, 344-348 (1892).

Galerucinae. M. Jacoby, vol. VI, pt. 1, pp. 476-496 (1886); 497-584 (1887); 585-625 (1888). Vol. VI, pt. 1 Suppl., 324-340 (1892).

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    Curculioninae. G. C. Champion, vol. IV, pt. 4, pp. 1-144 (1902); 145-312 (1903); 313-440 (1904); 441-600 (1905); 601-729 (1906). Vol. IV, pt. 5, pp. 1-136 (1906; 137-240 (1907); 241-400 (1908); 401-497 (1909). Vol. IV, pt. 7, pp. 1-78 (1909).
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Lagriidae. G. C. Champion, vol. IV, pt. 2, pp. 1-74 (1889); 451-452 (1893).
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Mordellidae. G. C. Champion, vol. IV, pt. 2, pp. 250-256 (1890); 257-350 (1891); 462 (1893).
Murmidiidae. G. Lewis, vol. 2, pt. 1, pp. 243-244 (1888).

(To be concluded in the next issue.)

CURRENT LITERATURE

Compiled by Ross H. Arnett, Jr.

This section is designed to contain all papers on the Coleoptera of North and South America which are not in the Leng (1920) catalogue or the supplements, or papers containing new species and records not included in Blackwelder's Neotropical checklist and which have not been previously listed in The Coleopterists' Bulletin.

INTRODUCTORY NOTE: The compiler of this section, now relieved of the duties of editing the entire Bulletin, is undertaking the task of making this as useful as possible to our readers. The reader is invited to assist in this work by submitting to the current literature section the omissions which are noted as each issue appears, except for papers which are in the publications in the following list. All papers which have appeared in these publications will eventually be cited.

The following is a list of the publications regularly available to the compiler, and the abbreviation used in this section in citing the reference. As additional publications become available, they will be added to the list.

Trans. American Ent. Soc.—Transactions of the American Entomological Society.
American Midl. Nat.—The American Midland Naturalist.
American Mus. Nov.—American Museum Novitates.
American Nat.—American Naturalist.
Arb. morph. tax. Ent. Berlin-Dahlem.—Arbeiten über morphologische und taxonomische Entomologie Berlin-Dahlem.
Proc. Biol. Soc. Washington—Proceedings of the Biological Society of Washington.
Bull. Brooklyn Ent. Soc.—Bulletin of the Brooklyn Entomological Society.
Canadian Ent.—Canadian Entomologist.
Col. Bull.—Coleopterists' Bulletin.
Journ. Econ. Ent.—Journal of Economic Entomology.
Revista de Ent.—Revista de Entomologia.
Ent. Amer.—Entomologica Americana.
Ent. News—Entomological News.
Bull. Ent. Res.—Bulletin of Entomological Research.
Ann. Ent. Soc. America—Annals of the Entomological Society of America.
Proc. Ent. Soc. Brit. Columbia—Proceedings of the Entomological Society of British Columbia.
Proc. Ent. Soc. London—Proceedings of the Entomological Society of London.
Trans. Ent. Soc. London—Transactions of the Entomological Society of London.
Proc. Ent. Soc. Washington—Proceedings of the Entomological Society of Washington.
Ent. Tidskr.—Entomologisk Tidskrift.
Entomologist—The Entomologist.
L'Entomologiste—L'Entomologiste.
Ent. Mo. Mag.—Entomologists Monthly Magazine.
Ent. Rec. Journ. Variation—Entomologist's Record and Journal of Variation.
Journ. Ent. Zool.—Journal of Entomology and Zoology.
Florida Ent.—Florida Entomologist.
Revue franc. d'Ent.—Revue francaise d'Entomologie.
Great Basin Nat.—Great Basin Naturalist.
Proc. Hawaiian Ent. Soc.—Proceedings of the Hawaiian Entomological Society.
Insektenbörse—Insektenbörse.
Journ. Kansas Ent. Soc.—Journal of the Kansas Entomological Society.
Microentomology—Microentomology.
Ann. Mag. Nat. Hist.—Annals and Magazine of Natural History.
Journ. New York Ent. Soc.—Journal of the New York Entomological Society.

Pan-Pacific Ent.—Pan-Pacific Entomologist.
Psyche—Psyche.
Smithsonian Misc. Coll.—Smithsonian Miscellaneous Collections.
Tijdschr. Ent.—Tijdschrift voor Entomologie.
U. S. Dept. Agric. Misc. Pub.—U. S. Department of Agriculture Miscellaneous Publications.
U. S. Dept. Agric. Techn. Bull.—U. S. Department of Agriculture Technical Bulletins.
Proc. U. S. Nat. Mus.—Proceedings of the U. S. National Museum.
U. S. Nat. Mus. Bull.—U. S National Museum Bulletin
Journ. Washington Acad. Sci.—Journal of the Washington Academy of Science.
Wasmann Coll.—Wasmann Collector

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

WANTED—Bull. Buffalo Soc. Nat Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

WANTED TO BUY—up to 100,000 beetles, must be ½ inch long or larger, not smaller, can be any species, any number of a species. G. F. Schirmer, 2912 No. 45th Street, Milwaukee 10, Wis.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. JOLIVET, 6 rue de Balzac, Franconville, S. et. O., France.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. THEODORIDES, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. WILLARD H. NUTTING, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. BRIDWELL, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. BARR, 112 Agricultural Hall, University of California, Berkeley 4, California.

OEDEMERIDAE—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus*. I can offer German species of *Cicindela* and *Carabus*.. Would like to receive specimens of these genera from any place in the world. A. Korell, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. Darlington, Jr., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE—7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. Jolivet, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. Ira La Rivers, Biology Department, University of Nevada, Reno, Nev.

Carabidae—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

Pselaphidae—of the world, will purchase mounted specimens, and literature on larvae of this family. Also will collect other orders in exchange. Theo. Telsch, 158 W. Spencer St., Philadelphia 20, Pa.

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THE COLEOPTERISTS' BULLETIN

Volume IV APRIL, 1950 Number 2

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THE COLEOPTERISTS' BULLETIN

Volume IV APRIL, 1950 Number 2

NOTES ON THE HABITS OF PHYLLOBAENUS SCABRA (LE CONTE) (CLERIDAE)

By J. W. Tilden
San Jose State College, California

Phyllobaenus scabra (LeConte) was formerly assigned to the genus *Hydnocera* Newman. Wolcott (6) gives the reasons for placing *Hydnocera* as a synonym of *Phyllobaenus* Dejean.

Adults and larvae of this species are general predators on many sorts of small insects. Larvae of the moth *Bucculatrix variabilis* Braun were used for laboratory observations on the feeding of the adult beetles.When a moth larva is introduced into the container with the beetle, the latter runs around excitedly for several seconds. It then approaches the moth larva from the side and from behind, seizing it just behind the head. The struggles of the prey have no visible effect in loosening the attacker's hold, although a large larva may throw the beetle around violently in its attempts to dislodge the predator. The victim is not killed at once, but observations under a binocular microscope show that the circulation of the larva continues. Since the beetle's hold is just behind the head, at the point where the dorsal vessel empties cephalad, it is evident that the circulation in the larva merely serves to bring the body fluids into a position where they are available to the beetle. The beetle drinks the fluids as the pulsations of the dorsal vessel make them available, until the prey is almost completely empty of liquids. The clerid then worries and tosses the empty skin for several seconds and finally throws it aside. Three larvae in succession were thus destroyed by a single clerid without diminution of ferocity or speed of attack. A fourth was refused at the time but was eaten later the same day.

Larvae of *P. scabra* were found in early spring in deserted galls of the moth *Gnorimoschema baccharisella* Busck, on *Baccharis pilularis* De Candolle. When fed in the laboratory, these larvae attacked aphids readily. *Aphis helichryis* (Kaltenbach), which curls the leaves and distorts the growing tips of *Baccharis,* was used in observational feedings. Larvae of *P. scabra* do not appear to be as selective in point of attack as are the adult beetles, but most often the abdomen of the aphid is attacked first. Only the juices are ingested, as in the feeding of the adults. These clerid larvae are good foragers, entering every part of the aphid colony and soon destroying it entirely.

The larvae of *P. scabra* were observed to eat the pupae of the hymenopterous parasites *Microbracon* and *Eurytoma* that are often present in the galls of *Gnorimoschema baccharisella.* The observation that such pupae may be eaten by beetles of this genus is not new. Pierce, Cushman, and Hood (4) found that the larvae of *Phyllobaenus pubescens* (LeC.) fed not only on the early stages of the cotton boll weevil but also on the pupae of the parasite *Microbracon.*

The larvae of *P. scabra* ate also the nymphs of *Psocus confraternus* Banks, as well as spider eggs. The spider eggs are too large to be taken into the mouth and too small to offer much resistance, the spherical form causing them to roll away from the larva. In each case the larva followed the egg as it rolled away, attempting again and again to grasp it. At each unsuccessful attempt, the larva raised its head and vibrated the palpi. The beetle larva was successful only when it could work the egg into a corner or up against some object that gave support. In such cases the egg was eaten, the juices being taken and the shell rejected.

No larvae were hatched in the laboratory, and what may have been the number of the stadium of the field-taken larvae is not known. The smallest larvae passed three instars in the laboratory. Length of a stadium is not constant but varies directly with the food supply. Well-fed individuals had a stadial length of about three days. Individuals starved for seventeen days did not molt during that time but resumed feeding when food was offered, undergoing normal ecdysis three days after resumption of feeding. The head capsule splits at each molt, as noted by Snodgrass (5) for larvae other than those of Lepidoptera.

At maturity the larva spins a small silken net or shelter, scarcely to be dignified by the name of cocoon. This structure consists usually of a sheet of coarse dull-colored silk spun across a corner or a cranny, and pupation takes place behind this shelter. The web is loosely formed and of irregular mesh and differs from most true cocoons in lacking a specific form. Relatively few beetles have been observed to spin silk. Chamberlin and Ferris (2) found that *Liparocephalus* (Staphylinidae) spins a true cocoon. The source of the silk is apparently a sac-like structure near the tip of the abdomen. Preparations of larvae of *P. scabra* failed to show any organ that might be regarded as the source of the silk.

Observations on the larvae of *Hydnocera* (= *Phyllobaenus*) appear to be relatively few. Böving and Champlain (1) state that the larvae of this genus may be recognized by having the frons (which in this instance appears to be morphologically the clypeus) extending in a solid block to the occipital foramen, thus eliminating the coronal suture. Cerci are absent in this genus. The same authors describe the larvae of *scabra, verticalis* and *pubescens,* the latter doubtfully correctly determined, and give short biological notes on *unifasciata, verticalis* and *tabida.* Coquillett (3) gives a brief account of the larva of *scabra,* noting that one individual fed on wooly aphids and that another was found in the cocoon of a codling moth. Such notes as have been located tend to indicate feeding habits similar to those observed by the present writer.

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(4) Pierce, W. D., Cushman, R. A., and Hood, C. E. U. S. Dep. Agric., Bur. Ento., Bull. 100, p 68. 1912.
(5) Snodgrass, R. E. Smithsonian Misc. Coll., vol. 107, No. 7, pp. 1-52.
(6) Wolcott, A. B. Fieldiana: Zoology, vol. 32, No. 2, pp. 64-65.

NOTED COLEOPTERISTS DIE

HANS WAGNER, the famous specialist on the subfamilies Apioninae and Ceutorrhynchinae (Curculionidae), born in Wien in May 1884, died in Berlin April 10, 1949, of starvation. He had also worked on the Coleoptera-fauna of the province of Mark-Brandenburg. Through unfortunate circumstances he lost his great collections twice; first in 1936, and again at the end of the war in Berlin in 1945.

He had published many articles about the systematics, biology, and ecology of the weevils. Some of his systematic works are:

Coleopterorum Catalogus, pars 6, Curculionidae: Apioninae. 1910.

Genera Insectorum, fasc. 130, Curculionidae: Apioninae. 1912.

VACLAR MACHULKA, Ingenieur, died on June 20, 1949, in Prague, Czechoslovakia. He worked especially on Scydmaenidae and Pselaphidae of the palearctic region, and later in the difficult family Staphylinidae of the same region. His great Scydmaenidae, Pselaphidae, Staphylinidae, Ptiliidae, and Choleva collection has gone to the Prager National Museum.

H. Klapperich, *Bonn.*

NOTES ON THE DISTRIBUTION OF BRUCHUS BRACHIALIS FAHRAEUS AND MALACHIUS AENEUS (L.)

By N. M. Downie
State College of Washington, Pullman, Wash.

The writer has lived and collected in the State of Washington for the past year. In going over the 1949 catch this past winter, he found a large number of the genus Bruchus present. These turned out to be *B. brachialis* Fåhr., the hairy-vetch bruchid, as identified by Mr. C. A. Frost. This species was taken in large numbers by sweeping vetch during the months of April, May, and June in the wheat and pea country of eastern Washington. On several bright warm days in mid-October, many specimens were also taken from the sides of houses in the city of Pullman along with various flea-beetles and members of the genus Scymnus. Perhaps all of these were looking for crevices in which to "hole up" for the winter.

A short time ago the writer checked the State College collection and found in a box of unidentified Bruchidae quite a few specimens of the species under discussion. These were from both the eastern and western part of the state and go back to the year 1931. This last date is interesting for in 1933 Bridwell and Bottimer[1] described this insect's known distribution in five mid-Atlantic seaboard states. They make no reference to the appearance of this beetle in the United States before 1931. Also they speculate on the possible losses caused by this bruchid on vetch seed in Oregon. It would seem that the hairy-vetch bruchid was getting a foothold on the west coast as early as it was on the east coast.

As noted above wheat is one of the principal crops of Eastern Washington. While sweeping along the edges of wheat fields during May 1949, the writer picked up quite a few specimens of *Malachius aeneus* (L.) As there were none of these in the State College collection, the writer feels that their appearance here may be a rather recent event. If, as suggested by Barber[2], this species is destructive to wheat, then a heavy wheat producing area is already under attack.

---

[1] J. C. Bridwell and L. J. Bottimer. The Hairy-Vetch Bruchid, Bruchus brachialis Fahraeus, in the United States, *Journal of Agricultural Research*, vol. 46, no. 8, p. 747. Apr. 15, 1933.

[2] H. S. Barber. A Note on Malachiidae, *Coleopterists' Bull.*, vol. 3, p. 72, 1949.

EXPERIMENTS ON THE VESICATING PROPERTIES OF SPECIES OF PAEDERUS (STAPHYLINIDAE) IN FRANCE

By J. Theodorides

Laboratoire Arage, Banyuls-sur-mer, France

This note is intended to point out some of the results obtained recently with French species of the genus *Paederus* as regards their ability to produce dermatitis when crushed on the skin.

These beetles have been known for a long time to have this property, which is shared by many species from Europe, Asia, Africa, and America (literature in Allard 1948).

In France very little work has been done on this subject.

Therefore, during the spring and summer of 1949 I worked on this problem with the following results:

1. *Paederus fuscipes* Curt., never tested in France as regards its vesicating properties, gave the classical vesicular dermatitis when crushed on the skin of guinea-pigs and man (in this instance, the writer's forearm).
2. *P. riparius* L. gave the same results on both guinea-pig and man. This species has never been tested before and is thus to be added to the list of the vesicating *Paederus* of the world.
3. *P. littoralis* Grav. is vesicant upon the guinea-pig (its effect on the human skin has already been shown by Allard, 1948).
4. *P. rubrothoracicus* Goeze is also vesicant upon the human skin. It has previously been shown to act on the eye of the rabbit (Netolitzky, 1919).

Adding what was previously known to the present experiments, it is possible to say that out of the 10 species of *Paederus* occurring in France (Corsica included) (Jarrige 1944), four are vesicant for man and other mammals (guinea-pig, for instance). They are: *P. rubrothoracicus* Goeze, *P. littoralis* Grav., *P. riparius* L., and *P. fuscipes* Curt.; *P. limnophilus* Er. and *P. ruficollis* Fabr., were not tested in French territory itself but by Netolitzky (op. cit.) in Central Europe, who found positive results on the eye of the rabbit and the human skin. These results would certainly be the same in France.

The four other species have never been tested because of their scarcity or localization. They are: *P. meridionalis* Fauv. (Corsica), *P. caligatus* Er., *P. baudii* Fairm., and *P. brevipennis* Lac.

Owing to this scarcity, these species, if ever vesicant (and this is most probable), have very little medical importance.

Allard, V. Les Staphylinides vésicants du genre *Paederus*. Thesis M. D. Paris, Foulen Edit., 54 pp., 1 fig. 1948.

Jarrige, J. Les *Paederus* de France. L'Entomologiste, vol. 1, pp. 5-10, 1 fig. 1944.

Netolitzky, F. Eine neue Gruppe blasenziehender Käfer. Zeitschr. ang. Ent., vol. 5, pp. 252-257, 2 figs. 1919.

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Synteliidae. D. Sharp, vol. II, pt. 1, pp. 438-440 (1891).
Telephoridae. H. S. Gorham, vol. III, pt. 2, pp. 65-106 (1881); 277-311 (1885).
Tenebrionidae. G. C. Champion, vol. IV, pt. 1, pp. 1-88 (1884); 89-136 (1885); 137-264 (1886); 265-352 (1887); 353-384 (1888); 477-524 (1892); 525-563, 572 (1893).
Rhipidandri. D. Sharp, vol. II, pt. 1, pp. 690-692 (1905).
Throscidae. G. H. Horn, vol. III, pt. 1, pp. 193-209 (1890). G. C. Champion, vol. III, pt. 1, p. 667 (1897).
Trichopterygidae. A. Matthews, vol. II, pt. 1, pp. 126-156 (1888); 694 (1905).
Trogositidae. D. Sharp, vol. II, pt. 1, pp. 388-437 (1891); 695-696 (1905).
Xylophilidae. G. C. Champion, vol. IV, pt. 2, pp. 166-190 (1890); 455-461 (1893).

BOOK REVIEW

TRAITÉ DE ZOOLOGIE, edited Pierre-P. Grasse. Tome IX INSECTES. Masson et Cie., Paris, 1949. 4,500 fr. *Coleoptera,* by R. Jeannel and R. Paulian, pp. 771-1077, figs. 407-752.

The new "Traité de Zoologie" is evidently intended to serve as a standard reference work for a long time to come, and in view of the substantial binding and good production generally, one can hardly complain of the rather high price of this volume. The text-figures are mostly clear and useful, and there are a few colored plates which are attractive if hardly essential. One may note that whatever is depicted in fig. 608 is pretty certainly not *Othnius,* and one may suspect that figs. 642 and 748 have been somehow transposed. The absence of any index of the figures is to be regretted. The bibliography of the Coleoptera section is selective rather than comprehensive; for example, in spite of frequent references by both authors to the structure of the Malpighian tubules, the work of Max Poll (on which such of their statements as are correct are presumably based) is unmentioned, and in spite of the stress laid by Paulian on the abdominal morphology of LAMPYRIDAE, etc., there is no reference to the important work of Verhoeff in that field; Kempers and d'Orchymont are cited on the wing venation, but there is no mention of the at least equally important studies of Forbes. In a work of this nature, in which the whole range of the animal kingdom is dealt with by a large number of authors, qualitative and quantitative unevenness in the treatment of different groups is inevitable; if the treatment of the Coleoptera falls short of the standards of responsibility one is entitled to expect in such a work, it must not be assumed that the same will be true in respect to other groups of animals.

The section on Coleoptera is itself the work of two authors. Prof. Jeannel contributed the "Partie Génerale" and the systematic treatment of Adephaga and Archostemata, while Dr. Paulian is responsible for Polyphaga (here regarded as two separate suborders, Heterogastra and Haplogastra). The special studies of Prof. Jeannel are reflected in the fact that a third of the figures illustrating the "Partie Générale" are drawn from two relatively small groups, TRECHINAE and CATOPINAE, and in the allocation of 35 pages to the CARABIDAE while the CHRYSOMELIDAE receive only 6. It is also notable that Prof. Jeannel's *divisions* of Adephaga correspond roughly to the families of older authors, while Paulian's *divisions* of Polyphaga correspond to superfamilies in the large sense (e.g. Lamellicornia, Phytophagoidea including CURCULIONIDAE as well as CERAMBYCIDAE and CHRYSOMELIDAE). Both authors form the names of *divisions* by adding oidea to the stem of a family name, or sometimes of an old descriptive name (e.g. Malacodermoidea). Prof. Jeannel resolves his *divisions* into *sections* with descriptive names; Dr. Paulian likewise uses *sections* but forms their names by adding –aria (Lymexylaria), –iaria (Catopiaria) or –idaria (Melyridaria) to the stem of a family name or of an arbitrarily chosen generic name (Lyttaria), or sometimes uses old descriptive names (Sternoxia, etc.). A few of Prof. Jeannel's *sections* are subdivided into *superfamilles* with names formed by adding –omorphi to the stem of a generic name. His ultimate *familles* of Caraboidea are equivalent to the tribes of older authors.

The reader who looks for an up-to-date objective and reliable summary of our present knowledge of the Coleoptera will be disappointed in this work. Instead, the authors offer an attractively written but highly partial exposition of their own views, in most cases without even indicating to the reader that others hold different opinions. Moreover, there are so many demonstrably false statements made by both authors that the student would be advised to exercise considerable caution in using this work as a source of factual information. Some of the notably incorrect or misleading statements made are the following:

P. 771, in the definition of the order: "Pas de stigmates métathoraciques, sauf chez quelques forms primitives." Metathoracic spiracles seem to be present and functional in all adult beetles (except perhaps the endoparasitic female Stylopoids) though often sunk in a deep recess behind the mes-epimeron. In the next sentence it is said of the wing veins: ''La médiane postérieure est toujours très développée, prépondérante; les cubitales au contraire réduites.'' This description takes for granted a controversial series of homologies for the veins.

P. 779: ''Chez les phytophaga (Curculionidae, Chysomelidae) il n'existe plus trace des sutures gulaires.'' As is well known, in CURCULIONIDAE the gular sutures are usually fused and appear as a median impressed line; in CHRYSOMELIDAE two short gular sutures are normally present though often confined to the part of the head which is usually concealed in the prothorax.

P. 785: ''Une pair des ocelles est le règle chez les Pterolominae, chez les Homaliini et chez les Pselaphidae.'' I know of no Pselaphid with dorsal ocelli, and if the PTEROLOMINAE are defined as possessing them then the subfamily is reduced to the single species *Pteroloma forsstromi.*

P. 786, of coleopterous antennae: ''La pubescence commence à partir de 3e. du 4e. ou du 5e. article.'' Pubescence in beetle antennae may commence with segment 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or not at all.

P. 787: The assertion, made long ago and never confirmed, that *Paussus sphaerocerus* has luminous antennae, is uncritically repeated. The adjective ''flabellée'' may possibly have a special meaning in French, but flabellate in English is not normally used to mean that the segments have outgrowths on both sides.

P. 789: ''Antennes respiratoires.'' The statements made concerning the functions of the antennae in GYRINIDAE, DRYOPIDAE, and *Platypsyllus* are not to my knowledge based on any hitherto published observations and Jeannel refers to no experiments of his own in this connection. The well known respiratory function of the antennae in HYDROPHILIDAE is ignored.

P. 793: The attempt here made to homologize serially the segments of a maxillary palp with those of a thoracic leg is purely speculative and hardly in place in a textbook.

P. 803: The statements made concerning the middle coxal cavities are far from reliable. An important type (that in which the met-episterna reach the middle coxal cavities as in CUPED-

IDAE, *Micromalthus*, many DYTISCIDAE, etc.) is omitted, and the implications that, for instance, all CERAMBYCIDAE have the coxal cavities of Jeannel's ''type epimeral'' or all TENEBRIONIDAE of his ''type sternal'' are unfounded.

P. 817: The account given of the homologies of adult and larval tarsal claws is at variance with accepted views and no real evidence is adduced.

P. 851: Jeannel rejects the description of the first-stage larval leg of *Micromalthus* given by careful workers (Barber, Böving and Craighead, Pringle) who have actually had material of it to study.

P. 896: ''Tête avec un organ frontal ocelliforme.'' This character applies only to *Hylecoetus;* the organ in question is a deep pit in the vertex with no evident resemblance to an ocellus.

P. 893: By the characters given for ''Malacodermoidea'' and ''Lymexylaria,'' *Micromalthus* and LYMEXYLIDAE should have six free Malpighian tubules; there are no published data on these organs in *Micromalthus,* and in *Hylecoetus* Poll describes four crytonephridic tubules.

P. 898: ''On y place aussi les Rhadalidae . . . Prionoceridae, . . . et les Phloeophilidae.'' As far as I know, Paulian is the only authority who has suggested placing any of these groups between DRILIDAE and LAMPYRIDAE (they have all been placed with MELYRIDAE and CLERIDAE hitherto), and he gives no evidence for his statement.

P. 925: ''Dascilloidea Jeannel et Paulian 1944,'' ''6 tubes de Malpighi cryptonéphridiés.'' Of the 18 families listed here, only three (BUPRESTIDAE, ANOBIIDAE, PTINIDAE) are known to be cryptonephridic.

P. 941: *Chelonarium* is figured as a type of BYRRHIDAE, though hardly any modern authorities have regarded it as belonging to that family; the larva of the genus is not ''inconnue,'' having been described and figured by Böving and Craighead.

P. 955: Of CUCUJIDAE: ''Tarses lobés en dessous''; of SILVANIDAE: ''Tarses dépourvus des lobes en dessous.'' These statements should be reversed.

P. 959: Of SPHINDIDAE: ''Adultes et larves sont mycétophages et se nourissent surtout des spores immatures ou mûres des Lycoperdinées''; of ASPIDIPHORIDAE: ''dans les Lycoperdinées dont ils rongent les spores.'' As far as is known, all SPHINDIDAE (including *Aspidiphorus*) feed on Mycetozoa; no species are known to frequent Lycoperdineae.

P. 960: of HETEROCERIDAE: ''Antennes de 10 ou 11 articles.'' *Micilus* has 8-segmented antennae.

P. 964: Of Phytophagoidea: ''Édéage à tegmen en cavalier.'' This description is hardly applicable to any CHRYSOMELIDAE outside the Eupoda. Chrysomelid antennae are said to be ''longues ou assez longues, en massue.'' Very few Chrysomelid antennae could be called clubbed.

P. 966: ''Le groups entier des Halticides est composé d'espèces qui progressent par bonds.'' Leaping in Halticinae is to be regarded as an escape reaction rather than as the normal mode of locomotion.

P. 970: Of BRUCHIDAE: ''Tarses de 4 articles''; elsewhere the phytophagoidea are described as ''cryptopentameres.'' The front coxal cavities in this family are described as ''fermées''; in ordinary coleopterological parlance *closed* in this connection is taken to mean *with the closure externally visible* which is by no means always the case in BRUCHIDAE.

P. 972: Of CERAMBYCIDAE: ''Antennes souvent avec un nombre anormalement élevé d'articles.'' The word ''souvent'' here is likely to give a wrong impression; the vast majority of Cerambycids have normal 11-segmented antennae.

P. 976: Of CURCULIONIDAE (s. lat.): ''Mandibules mobiles verticalement et non horizontalement.'' This is only true of a very few (tribe Balaninini).

P. 977: of BELIDAE: ''Larves inconnues.'' The larva of *Belus* was fully characterised (with figures) by van Emden in 1938.

P. 985: Of IPIDAE larvae: ''pièces buccales atrophiées.'' This statement at its face value is nonsensical. The adult tarsi are described as ''de 4 articles,'' while those of CURCULIONIDAE are referred to (p. 976) as ''cryptopentameres.'' They are of the same type.

P. 992: Of LIODIDAE: "La plupart des espèces se développent dans les Champignons, surtout les Ascomycètes hypogés." Though *Liodes* has the habits indicated, species of the large genera *Agathidium* and *Anisotoma* feed on Mycetozoa.

P. 995: Of HYDRAENIDAE: "Cavités antérieures fermées en arrière." This is untrue of *Ochthebius* and several other genera.

P. 997: Of STAPHYLINIDAE: "antennes inserées à la face dorsale de la tête," "sans massue nette." These statements should be compared with figures 687, 688, and 690. The front coxae are described as "pendantes, mobiles, sub-contiguës." They may be transverse (*Nodynus, Micropeplus,* PROTEININAE) or rounded (PIESTINAE) in certain Staphylinids. They are not always "subcontiguës"; for example, in *Leptochirus.*

P. 1002: Of SILPHIDAE: "Parfois des ocelles frontaux (Apatetica, Pteroloma)." *Apatetica* is very doubtfully a Silphid and lacks ocelli. Of the same family "antennes à massue compacte, de 3 articles." The antennae of Silphids may be filiform or more usually with a 5-segmented club.

P. 1008: Of SPHAERITIDAE: "Une seule espèce"; a second species is now known,—see Reikhardt's monograph (Faune de l'URSS) of 1941.

P. 1026: Of Jacobsoniidae: "La famille ne comprend qu'une espèce de Sumatra." A second genus and species, from the Seychelles, is known (see Heller 1927).

P. 1027: Of CUPEDIDAE: "Antennes très longues et moniliformes." Cupedid antennae may be short (*Omma, Tetraphalerus*) or serrate (*C. latreilli*). The statement, apparently originating from Lacordaire, that the tibiae are "sans eperons," is repeated; is has no basis in fact. Jeannel says elsewhere (p. 823) that "Les Cupes . . . n'ont que 4 arceaux apparents." I have been able to find no basis either in fact or in the literature of the last 70 years for this statement; the abdominal structure of Cupes was correctly described by Lacordaire in 1857.

P. 1062. Of HALIPLIDAE: "Antennes grèles, de 10 articles." Haliplid antennae are quite evidently 11-segmented.

In addition to these misstatements, very many important taxonomic features are ignored; for example, the lateral extensions of the hind coxae to meet the epipleurae which set off Hydradephaga from terrestrial Caraboids, the special structure (elucidated in the works of d'Orchymont) of the Hydraenid and Hydrophilid antenna, the characteristic trochanters of ANOBIIDAE and PTINIDAE, the character of the larval maxillary articulating area, the laminate posterior coxae of DERMESTIDAE, BYRRHIDAE, HETEROCERIDAE, the dorsal ocelli of DERODONTIDAE (though these organs are much stressed in other Coleoptera), the asymmetry of the antennal club in OSTOMATIDAE, etc.

To criticize in detail the actual classification proposed by Jeannel and Paulian would be a laborious task. It is sufficient to say that it is highly discrepant from any hitherto used and that it involves the dismemberment of many generally-accepted and well-characterised groups and the acceptance of new ones of a heterogeneous nature. To take an example, the almost universally recognized group Bostrychoidea (or Teredilia) comprising the families PTINIDAE, ANOBIIDAE, BOSTRYCHIDAE, PSOIDAE, and LYCTIDAE, is thus treated: PTINIDAE and ANOBIIDAE are put in Division Dascilloidea, section Anobiaria; LYCTIDAE in division Cucujoidea, section Dermestaria; PSOIDAE in Cucujoidea, section Colydiaria, and BOSTRYCHIDAE in Cucujoidea, section Bostrycharia. HETEROCERIDAE are placed in Cucujaria together with a series of families such as NITIDULIDAE, CUCUJIDAE, CRYPTOPHAGIDAE and EROTYLIDAE, in disregard of almost all taxonomic characters both adult and larval—even the aedeagus on which the Jeannel-Paulian system is said to be based. Cyathoceridae are placed in Colydiaria without mentioning that not a single one of the diagnostic characters given for that group has been verified for *Lepicerus* (*Cyathocerus*).

The most valuable positive feature of the work is the extensive new data on the male genitalia with a number of good figures. The student will find this book much more useful as a guide in interpreting coleopterous aedeagi than is Sharp and Muir's monograph.

R. A. Crowson, *Glasgow.*

CURRENT LITERATURE

Compiled by Ross H. Arnett, Jr.

This section is designed to contain all papers on the Coleoptera of North and South America which are not in the Leng (1920) catalogue or the supplements, or papers containing new species and records not included in Blackwelder's Neotropical checklist and which have not been previously listed in The Coleopterists' Bulletin.

Additions to the list of publications available:
Ent. Berichten—Entomologische Berichten

General

Blackwelder, R. E. 1950. Index to families of beetles in the Biologia Centrali-Americana. Col. Bull., vol. 4, pp. 11-14. **Craighead, F. C.** [editor?]. 1950. Insect Enemies of Eastern Forests, U. S. Depart. Agric. Misc. Pub., no. 657, 679 pp. [Superintendent Doc., $2.50; ill., keys, Coleoptera pp. 153-343.] **Dammerman, K. W.** 1950. Nomina conservanda of Coleoptera I. Ent. Berichten, Vol. 13, no. 295, pp. 11-13. **Darlington, P. J., Jr.** 1949. Beetles and Continents—A review of ''La Genese des Faunes Terrestres: Elements de Biogeographie by R. Jeannel. Quarterly Review of Biology, vol. 23, pp. 342-345. [not seen]. **Spieth, H. T.** 1950. The David Rockefeller Mexican expedition of the American Museum of Natural History. Introductory account. American Mus. Nov., no. 1454, 67 pp. [ill.]

Buprestidae

Guppy, Richard. 1950. Remarks on the occurrence of Buprestid larvae in sawn lumber. Col. Bull., vol. 4, pp. 3-6.

Chrysomelidae

Smith, R. F. and Michelbacher, A. E. 1949. The development and behavior of populations of Diabrotica 11-punctata in foothill areas of California. Ann. Ent. Soc. America, vol. 42, pp. 497-510.

Cicindelidae

Vaurie, Patricia. 1950. Four new subspecies of the genus Cicindela (Coleoptera, Cicindelidae). American Mus. Nov., no. 1458, 6 pp.

Curculionidae

Young, Frank N. 1950. More about "the home of Hormops." (Curculionidae). Col. Bull., vol. 4, pp. 1-2.

Dytiscidae

Leech, Hugh B. 1949. New species and subspecies of nearctic water beetles. Wasmann Coll., vol. 7, pp. 243-256. [ill., Dytiscidae and Hydrophilidae.

Hydrophilidae

Leech, Hugh B. See Dytiscidae.

Scolytidae

Schedl, Karl E. 1949. Tropical seed beetles of the genus Coccotrypes Eich. Tijdschr. Ent., vol. 91, pp. 113-120.

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

WANTED TO BUY—ELMIDAE, DRYOPIDAE, LIMNICHIDAE, PSEPHENIDAE, EUBRIIDAE from exotic areas; will determine American species. Adults and larvae. Harry G. Nelson, Dept. of Biology, Herzl Jr. College, Chicago 23, Ill.

PSAMMODIUS (SCARABAEIDAE: APHODIINAE) from North, Central, and South America wanted for revisional study. Will be glad to determine specimens for privilege of examination. O. L. Cartwright, Div. of Insects, U. S. National Museum, Washington 25, D. C.

HELODIDAE AND DASCILLIDAE of the world. Studying these families and would be glad to receive specimens in exchange for Australian material. J. W. Armstrong, ''Callubri,'' Nyngan, N.S.W., Australia.

WANTED—Bull. Buffalo Soc. Nat Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus*. I can offer German species of *Cicindela* and *Carabus*.. Would like to receive specimens of these genera from any place in the world. A. Korell, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. Darlington, Jr., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE —7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

CHRYSOMELIDAE—Would be glad to receive Chrysomelidae of the world for study. Desire especially Timarchini (Iscadida, Microtheca, etc.) and would be glad to buy or exchange some of them. P. Jolivet, 6 rue de Balzac, Franconville, S. & O., France.

HETEROCERIDAE—Would like to obtain heterocerid material from anywhere in the world; will determine American species and buy or exchange for extraterritorial material. Ira La Rivers, Biology Department, University of Nevada, Reno, Nev.

Carabidae—Would like to exchange Carabidae. Want particularly species of *Chlaenius* of the *aestivus* group. Ray T. Everly, Dept. Ent., Purdue University, AES Annex, W. Lafayette, Ind.

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THE COLEOPTERISTS' BULLETIN

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ALAN SLOAN NICOLAY, 1893-1950

In the death of Alan Sloan Nicolay the world of coleopterists has lost another of the passing generation of collecting enthusiasts. Although he was much younger than his friends Leng, Schaeffer, Davis, and Schwarz, his taxonomic work was completed during their lifetimes, and he will be remembered with them by many of us.

His great interest in collecting beetles kept him in close touch with other collectors, such as Ernest Shoemaker, E. D. Quirsfeld, Howard Notman, C. A. Frost. Harry B. Weiss, Frank R. Mason, and G. B. Englehardt, with whom he made many collecting trips from Maine to Florida. And his interest in the beetles themselves made him a frequent visitor at museums from Cambridge to Washington, whenever his work enabled him to get away for a few hours. He was well known among eastern coleopterists and was always welcomed for his friendliness and enthusiasm. He was usually called Nick or Nicky by his entomological friends.

Interest in insects and all nature was an early development in Nicolay. His first collection of insects was made as a small boy and consisted of butterflies and moths. Although he soon turned to beetles, he twice in later years redeveloped an interest in Lepidoptera and started collecting Pieridae, Lycaenidae, Parnassius, and Satyridae. He took fine series of several rare species in these groups but finally concluded that the extra equipment required made collecting too difficult. He turned these later collections over to Ernest Shoemaker, in whose cabinet they may still be seen.

When still a boy, Nicolay was a frequent visitor at the Brooklyn Museum. Here he found an active group of entomologists who encouraged him and developed his interest in field trips and in taxonomic work, and in 1914 he became a member of the Brooklyn Entomological Society and the New York Entomological Society. From this time on he was a close friend of Ernest Shoemaker, the two of them making many field trips together, and sharing their specimens in many cases. They visited the District of Columbia in September 1915, in September 1921, and

Alan Sloan Nicolay

again in June 1923 (with Quirsfeld), collecting in many of the old-time haunts along the Potomac from Mt. Vernon to Great Falls. From about 1920 to about 1943, after which the war and a prolonged illness interfered, he made many excursions with another close friend, Ed Quirsfeld, who describes Nicolay as ''the most energetic and competent collector I have ever had the privilege to know.'' These trips were never resumed after his recovery.

His first real interest in beetles appears to have been the Mordellidae. This was soon replaced by the Cerambycidae and then the Buprestidae, on which he specialized until the middle 20's. He then turned to the Cicindelidae and Carabidae, especially the former, of which he made considerable collections. Finally, he turned to smaller beetles, the Pselaphidae, Scydmaenidae, and Clavicornia. In each case he employed suitable means for finding the desired specimens, whether by trapping, netting, or sifting. His coverage of northern New Jersey is probably unmatched by any other collector, and his favorite localities also included the pine barrens of southern New Jersey, the Philadelphia area, and the Potomac River valley.

He was a meticulous preparator, taking great pains with his specimens and housing them in beautifully kept Schmidt boxes in the familiar ''Cambridge cans'' type of case. He did not try to keep large collections, but disposed of groups in which he was no longer actively interested to make way for other things. In this manner he gave his Lepidoptera away as noted above, in 1930 presented 4000 weevils to the National Museum, in 1936 gave in exchange to the same institution 415 Buprestidae and sold to it all his Cleridae, which included the Schaeffer material. In 1938 he gave to the National Museum 111 Scarabaeidae, and in 1940 he sold one section of his Carabidae to the American Museum of Natural history. Many other specimens were given to his co-collectors, especially Frank Mason, Ed Quirsfeld, and Ernest Shoemaker. The bulk of his collection (especially rich in Cicindelidae and Carabidae) was left by bequest to the National Museum, where it has now been received and is a welcome addition of unusually fine material. His extensive library is to be sold.

His entomological career consisted of the few months with the New Jersey Department of Agriculture from December 1917 to August 1918 and in 1919. He was a nursery inspector, often working with Harry Weiss. His other entomological work consisted of spare-time collaboration with Weiss on several life-history studies and his own production of several revisional studies and faunal lists.

His first public contributions to entomology seem to have been some remarks on collecting at a meeting of the Brooklyn Entomological Society on March 13, 1913 and at a meeting of the New York Entomological Society on October 7, 1913. These were reported in the Bulletin for June 1913 and the Journal for December 1913. His first publication was in 1914 on the Mordellidae of New York State, in the Bulletin of the Brooklyn Entomological Society, and his last one in 1934 on Carabidae in the Journal of the New York Entomological Society.

[A biographical notice is being prepared for the Journal of the New York Entomological Society by Harry B. Weiss, and one for the Bulletin of the Brooklyn Entomological Society by George S. Tulloch.]

PARTIAL LIST OF COLLECTING TRIPS,
not including New Jersey or vicinity

NOVA SCOTIA, July 1929. MAINE, Cumberland, summer 1916; Mt. Katahdin, July 1939. NEW HAMPSHIRE, White Mts., June 1921; July 1925; Mt. Madison, July 1928. NEW YORK, Adirondack Mts., July 1922. DISTRICT OF COLUMBIA, Sept. 1915, Sept. 1921, June 1923. VIRGINIA, Skyland, Page Co., June 1924, Sept. 1933; Cape Henry, May 1924. NORTH CAROLINA, Mt. Mitchell, June 1927, June 1939; Cataloochee Divide, June 1940; Mt. Pisgah, Sept. 1934; Southern Pines, April 1934. TENNESSEE, Great Smoky Mts., Oct. 1922; Gatlinburg, Sept. 1941; Clingman's Dome, Aug. 1932; Mt. Leconte, Aug. 1932. GEORGIA, St. Simon's Island, July 1931. FLORIDA, Venice, June 1936. FRANCE, Verdun, Dec. 1918.

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1919. A list of the Buprestidae and Cerambycidae taken on Long Island, N. Y. Bull. Brooklyn Ent. Soc., vol. 14, pp. 17-20, 63-72.

1919. Notes on the life-history and early stages of Brachys ovatus Web., and Brachys aerosus Melsh. Canadian Ent., vol. 51, pp. 86-88, 2 pls. [With H. B. Weiss.]

1919. Notes on Zeugophora scutellaris Suffr., a European poplar leaf-miner, in New Jersey (Col.). Ent. News, vol. 30, pp. 124-127, 1 fig. [With H. B. Weiss.]

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1919. Additions and corrections to the Review of the genus Buprestis in North America. Journ. New York Ent. Soc., vol. 27, p. 241. [With H. B. Weiss.]

1920. Observations made around Bar-sur-Aube, France, with a list of the Carabidae found there. Bull. Brooklyn Ent. Soc., vol. 15, pp. 11-14.

1920. A Mexican species of Agrilus found in Arizona (Coleoptera). Ent. News, vol. 31, pp. 100-102. [With W. S. Fisher.]

1920. The group Traches in North America. Part I. The genera Pachyschelus and Taphrocerus. Journ. New York Ent. Soc., vol. 28, pp. 136-150, 1 pl. [With H. B. Weiss.]

1921. Corrections and additions to the Leng list of Coleoptera. Family Buprestidae No. 1. Journ. New York Ent. Soc., vol. 29, pp. 173-178.

1923. The group Traches in North America. Part II. The genus Brachys (Coleoptera). Journ. New York Ent. Soc., vol. 31, pp. 59-76, 1 pl. [With H. B. Weiss.]

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R. E. Blackwelder.

CONCERNING BEMBIDION USTULATUM L. IN NORTH AMERICA (CARABIDAE)[1]

By Milos Fassati
Prague, Czechoslovakia

The question of whether *Bembidion ustulatum* L. occurs in North America is not a new one.

In 1823 Thomas Say described *Bembidion tetracolum.* LeConte (1848) identified it with *B. rupestre* Illig. (nec L.), which is a synonym of *B. ustulatum* L. Dejean (1831) also considered that North American specimens of *B. rupestre* (Dej., nec L.) were the same as European ones. On the other hand Schaum (1857) distinguished *B. tetracolum* Say from *B. littorale* Oliv. (sensu 1795, nec Oliv. sensu 1791), which is another synonym of *B. ustulatum* L. He said that *tetracolum* has longer elytra, wider yellow areas, less coarse inner striae of elytra, which are hardly coarser than the outer striae, and impressions on the base of the prothorax not reaching the sides. R. Hayward (1897) mentions *B. ustulatum* L. and treats *tetracolum* Say as a synonym of it. Blatchley (1910) does the same. Casey (1918) in his monograph of *Bembidion* recognizes three independent forms: *tetracolum* Say, *rupicola* Kby. (previously considered a synonym of *ustulatum* L. *or tetracolum* Say), and a new subspecies *nactum* Csy. Casey recommends the adoption of Say's name as follows: ''The fact that besides *tetracolum* we have a number of closely related though distinct taxonomic modifications, shows that the *tetracolum* type has been very long established in America, and the probabilities therefore are that no one of our related forms is exactly the same as *ustulatum.* Comparisons of American with European species have been made too hastily in many instances, of which I believe the present to be one, . . .'' Casey's use of the name *tetracolum* Say is apparently based not on comparison with Swedish topotypes of *ustulatum* L., but only on the consideration quoted.

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[1] Aided by the Masaryk Fund of the Czechoslovakian National Research Council. Contribution 18 to knowledge of Carabidae.

In order to decide whether *B. ustulatum* L. does occur in North America I have carefully compared a number of American "*ustulatum,*" "*tetracolum,*" and "*rupicola*" with *B. ustulatum* L. from Sweden and other parts of Europe. I have used the following actual, numbered specimens.[2] (1) N. York, coll. Castelnau / Mus. Civico Genova / nov. *rupicola* Kirby. A. bor. / ? Original von Kirby, *rupicola* (in Netolitzky's hand-writing); 1 ♀, in collection of the late Prof. Dr. Netolitzky in Mus. Nat. Hist. Vienna. (2) N. Y. / New York / dedit G. W. Bock, St. Louis, N. America; 1 ♂, not determined, in Netolitzky Coll. (3) Harrisburg, IV. 3. 13, Pa., Champlain / *ustulatum,* Champlain det.; 1 ♀, in Netolitzky Coll. (4) Lemoyne, V. 1. 10., Pa. / Coll. by Kirk & Champlain / *ustulatum,* Champlain det. / *tetracolum* Say sensu Chaudoir in coll. Andrewes (in Netolitzky's hand); 1 ♀, in Netolitzky Coll. (5) Harrisburg, XI. 10. 09, Pa. / Coll. by Kirk and Champlain / *ustulatum* Champlain det.; 1 ♂, Netolitzky Coll. (6) Sodus Point, Wayne Co., N. Y., 3 March 1919, H. Notman; 1 ♀, not determined, in Netolitzky Coll. (7) Long Island, N. York, 1. V. 1948, leg. F. A. Kinsel; 1 ♂, in my collection. (8-11) Lowell, Mass. / ex Mus. Comp. Zoology; 4 ♂♂, in my collection. (12) Sk. Vitemölla, Mölleån, (leg.) Bo Tjeder, 21. 7. 47. / Schweden, Skåne / ex coll. Lindroth; 1 ♂, in my collection. (13) Boh. Ljung, Lyckorna, (leg.) Bo Tjeder, 28. 6. 45, / Schweden, Bohuslän / ex coll. Lindroth; 1 ♀ in my collection. I have had at my disposal also a couple of hundred other specimens from Europe, including England and west and central Europe.

The species *B. ustulatum* L. has two outstanding characteristics: First, the form of the male copulatory organs, second, in most individuals, slightly reduced wings of a length equal to or about ⅛ longer than the elytra (the wings of forms *pseudoustulatum* Müll. and *pseudouralense* Fass. and of subspecies *pfefferi* Mař. are fully developed).

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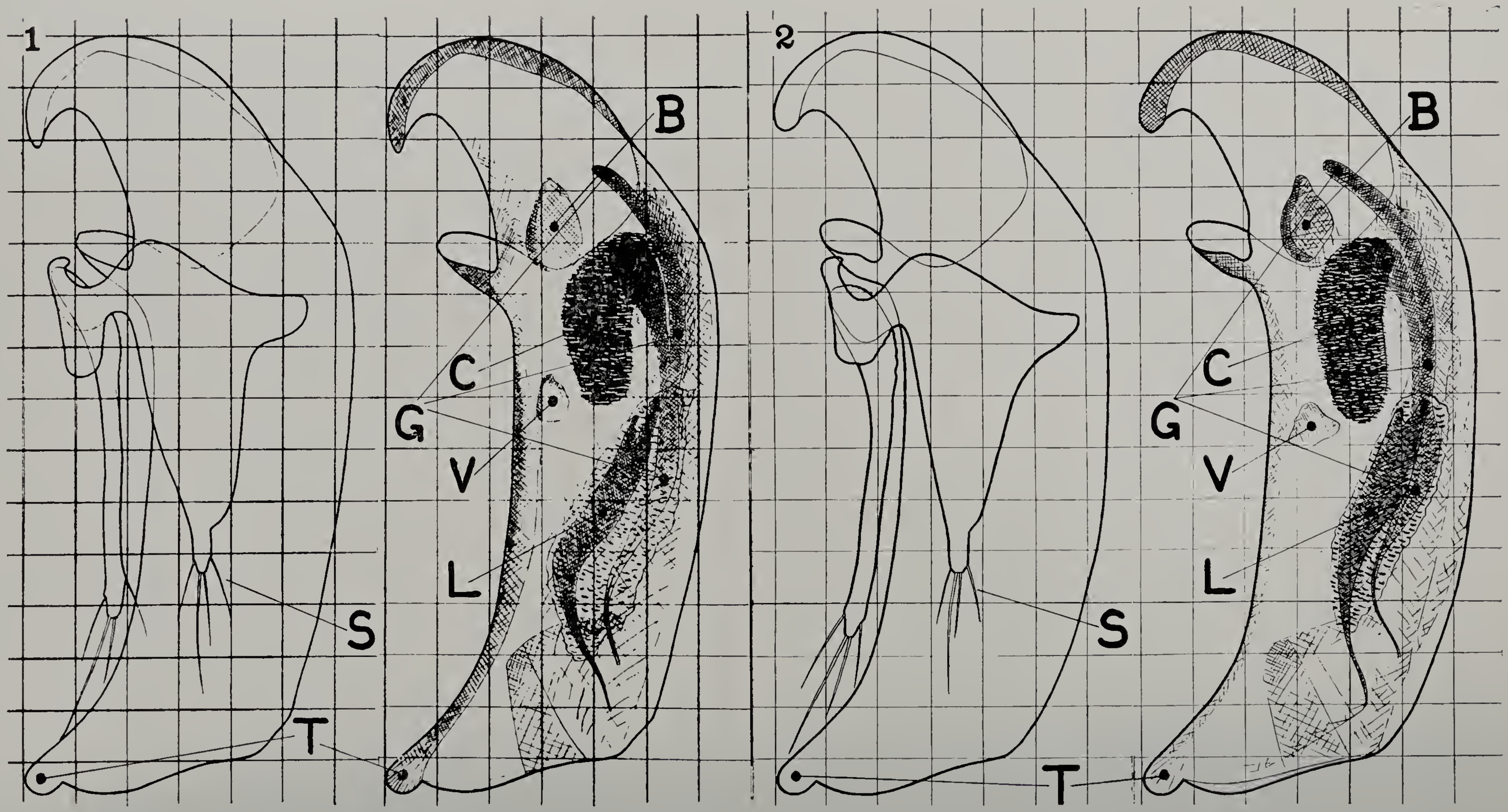
[2] I quote the labels exactly. A stroke (/) means another label. The notes in parentheses are mine.



Copulatory organs of *Bembidion ustulatum* L., magnified 58 times. Fig. 1: Topotype from Sweden. Fig. 2: From Long Island, New York.

The copulatory organs of a topotype (No. 12, above) of *B. ustulatum* L. from Sweden are shown in Fig. 1. On the left is the external structure, with the parameres. On the right is the inner structure of the penis as seen by transmitted light when mounted in carnation oil or concentrated acetic acid. Before mounting, the parameres were removed and the penis macerated for 24 hours in a 10% solution of KOH. An American specimen (No. 7, above) is shown in the same way in Fig. 2.

If the two figures are compared, it will be seen that they are strikingly similar. They do not differ in any important character. The size and shape of the external sac and of its tip (T) are the same. The apical part of the penis of the American specimen is somewhat wider, but this is due to its relative immaturity. The Swedish specimen has the two upper setae of the parameres set farther from the apex of the parameres, but in this respect it is an extreme variant. The position of the setae (S) of the American specimen is exactly as in most European ones. The two figures agree also in inner structure. The corpus squamosum (C) is of the same shape and size; and the shape, position, and length of the main (G) and lateral (L) sclerites are the same. The position of the corpusculum adsquamosum basale (B) and ventrale (V) is the same, although the shape is somewhat different. The shape of these structures, especially of the corpusculum ventrale, is not always constant within a species. The copulatory organs of all the other American males listed above are the same as in European specimens too.

The wings of the American specimens are slightly reduced, equal to or about ⅛ longer than the elytra, as in typical European examples, except that the specimen from Sodus Point (No. 6, above) has fully developed wings, as in form *pseudoustulatum* Müll. of Europe.

The superficial characters of the specimens examined show only small differences which are certainly within the limits of variability of the species. The striae and punctures of the elytra are somewhat coarser in some specimens (Nos. 2, 7, 8) and finer in others (5, 6) than in the Swedish examples. The prothorax of the original specimen of *B. rupicola* Kirby (No. 1) is more cordiform, with hind angles smaller than usual. No. 8 is nearly the same, but has an even wider prothorax with hind angles more obtuse. The antennae of No. 9 are a little paler from the 4th segment, nearly as in the Spanish subspecies *brachypteron* Fass. Specimens Nos. 10 and 11 also have antennae and palpi somewhat paler than usual in *B. ustulatum.* No. 5 and 6, especially the latter, are somewhat narrower and their antennae are somewhat more slender than usual, and the antennae of No. 6 are also longer than usual. The last variation is not found among European specimens, but is obviously an individual rather than a geographical character. It may mean that the species is not so fiixed morphologically in North America as in Europe.

I have tried to determine my specimens by Casey's key, but they hardly fit any of his descriptions of *"tetracolum,"* *"rupicola,"* or subspecies *"nactum."* For example, the original specimen of *rupicola* Kirby (No. 1, above) agrees with Casey's description of *rupicola* in coarseness of striae and punctures of elytra and perhaps in width of elytra; but the ratio of base to apex of prothorax and perhaps also the roundness of the sides of the elytra agree with *"tetracolum";* and the shape of the hind angles of the prothorax is more like *"nactum."* Specimen No. 3 is nearest to *"tetracolum"* except that it is the widest of all specimens examined, in which character it corresponds to *"nactum."* Nos. 2 and 6 are nearest to *"rupicola,"* except that they are strikingly narrow as in *"tetracolum."* My specimen from Long Island is nearest to *"nactum."*

My final conclusions are these:

(1) *Bembidion ustulatum* L. certainly occurs in North America.

(2) *B. rupicola* Kirby is identical with *B. ustulatum* L.

(3) *B. tetracolum* Say is probably identical with *ustulatum* L. and is probably not even a subsidiary form of the species. The last point can be settled only by examination of the type or an original specimen, if one is in existence.

(4) American specimens of *B. ustulatum* L. do not form a separate subspecies. They vary too much. However, they do

tend to have the striae and punctures of the elytra coarser than in European forms; the prothorax more cordiform, (more convex ?), and somewhat less sinuate before the hind angles, with the latter more obtuse; and the antennae and palpi somewhat paler. It would require study of many tens of specimens from different localities to determine the distribution of races (if there are any) of *ustulatum* in North America.

(5) Subspecies *nactum* Casey was described from a single specimen, so it is not possible to evaluate the difference between it and *tetracolum* Say. According to the description and to my topotype from Long Island, this "subspecies" is specifically the same as *ustulatum* L. It is not really a geographical subspecies, but probably only an aberration (form or morpha). Its distinguishing characteristic had best be considered the coarseness of the striae and punctures of the elytra.

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FORGOTTEN COLLECTORS

By Hugh B. Leech
California Academy of Sciences, San Francisco

In making a revisional study, an entomological taxonomist will usually borrow material from many sources. He hopes thus to see specimens from areas which he has not visited and to fill gaps in the reported variation and distribution.

Loans from individuals tend to consist of insects they have collected, and if data on the labels are not full enough or clear, the owners can be contacted. But loans from museums often represent the efforts of dozens or hundreds of private collectors over scores of years. In these cases an obscure label may be an enigma or a valuable key, depending on how much one knows of its source and of the activities of the collector.

Most private collections finally reach a museum, though they may be incorporated into one or even a series of other collections first. In the process they often lose their identity, and though museum curators record all obvious inclusions when a nominate collection is received, they may not be aware of the full historic import.

As time passes this condition will become worse, unless we record at least some information, and preferably as much as possible, about every collector. These reports might be put in the nearest institution which has a file on the history of entomology, but this does not of itself advertise what records are where, and the project is always at the mercy of a change in administration. It would be better to publish them, even if only as summaries of the essential data with a photograph of each person. These facts would then be available to all, and in a form as nearly permanent as possible.

The Coleopterists' Bulletin is the logical place for information about coleopterists, and I would like to draw attention here to a few of the many names not in such excellent works as M. M. Carpenter's Bibliography of Biographies of Entomologists (American Midland Nat., vol. 33, no. 1, pp. 1-116. 1945), E. O. Essig's A History of Entomology (New York, The Macmillan Co., 1931), M. H. Hatch's, A Century of Entomology in the

Pacific Northwest (Seattle, University of Washington Press, 1949), L. O. Howard's, A History of Applied Entomology (Smithsonian Misc. Coll., vol. 84, 1930), and H. Osborn's two volumes, Fragments of Entomological History (Columbus, Published by the author, Part I, 1937; Part II, 1946).

ANDREWS, ED. B., of Estes Park, Colorado; a lepidopterist and coleopterist. In 1936 he sent some Coleoptera for identification to the late Ralph Hopping, forest entomologist of Vernon, B. C. I was then on the latter's staff, and began to correspond and exchange beetles with Mr. Andrews. He wrote interesting and friendly letters in a most graceful script, and at Christmas sent cards showing beautiful local scenes, made from his own photographs.

He was particularly interested in Cicindelidae, Buprestidae, and Cerambycidae and sent me hundreds of water beetles in return for species of those families. Judging by the labels, he collected chiefly in near-by Rocky Mountain National Park. One of his habits may possibly lead to wrong citations for his specimens: In addition to a script locality label, he used a printed collector label which also carried his mailing address, and this was usually placed above the true locality tag. In some cases he labeled fully only the first specimen of a series and put collector labels on the rest.

Mr. Andrews died on March 24, 1942, and Mr. E. A. Sprague of Intermural Place, Estes Park, was administrator of his estate. His collection, contained in 135 cigar boxes, nearly all full, was supposedly for sale. I made two attempts to buy the aquatic beetles but could get no definite information and do not know what became of the material. The type series of *Xylotrechus robustus* R. Hopping was collected by Mr. Andrews.

FORRER, A. For years I was puzzled as to the source of specimens labeled in a typically European fashion with a narrow frame line around the printing. Examples are: "Californie Mér. De San Diego aux frontieres de l'Arizona et du Mexique. A. Forrer," and "Marine Bonndary [sic] Lower California. A. Forrer," always undated.

According to Walther Horn and Ilse Kahle (Über entomologische Sammlungen. Part 1, p. 79, 1935), A. Forrer is, or was, an entomological dealer in St. Gallen, Switzerland, who made three trips to the Pacific Coast, Vancouver-Mexico, ca. 1880-1885.

ROBERTS, CHRISTOPHER H. The death of C. H. Roberts on September 29, 1916, at Pawling, N. Y., was recorded in the Journal of the New York Entomological Society for that month (vol. 24, p. 236), and in the minutes of the October 3 meeting (vol. 24, p. 309), with a statement in the latter case that Mr. J. D. Sherman would perpare an obituary. To the best of my knowledge this was never published. There is also a record of the death in the Proceedings of the Brooklyn Entomological Society, published in the Bulletin (vol. 12, p. 45).

Mr. Roberts was a competent student of water beetles and author of papers still in constant use. Tributes to his skill, generosity, and kindness occur more than once in the writings of Mr. J. B. Wallis, another specialist on aquatics.

SNYDER, W. E. A naturalist of Beaver Dam, Wisconsin (107 W. Maple Ave., in 1903), who published several articles on Coleoptera. He was interested also in Hymenoptera and Hemiptera, as well as in birds and mammals, and was most active at the turn of the century.

THE COLEOPTERISTS' SOCIETY MEMBERSHIP

The response to the announcement of the organization of the Coleopterists' Society has been encouraging. Membership in the society has increased to 159 as of May 19th. The Bulletin is mailed to 211 subscribers (members and institutions). This is considerably less than the total for the December 1949 issue, which was 250. There have been very few requests for cancellations, however, and we hope that at least 50 more former subscribers will renew and become members.

G. B. V., *Sec'y.*

NOTES ON LIGHT-COLLECTING IN CONNECTICUT

By Gilbert C. Wood
Cornell University, Ithaca, N. Y.

On the night of June 28, 1948, a collection of beetles was made at light on Codfish Hill Road, two miles east of Bethel, Connecticut. Thanks are due to Mr. and Mrs. H. S. Drucker, at whose home the collection was made, for their courtesy in providing the necessary facilities. The light source was a frosted, "sealed beam," 100-watt lamp, mounted on the side of the house, about nine feet above the ground. A four-foot square of plywood, painted white, was used to reflect the light against the white clapboards of the house. The beam was aimed due east down over a sloping lawn to a swamp of cattails, sedges, and willow, about three acres in extent and one hundred and fifty yards distant from the house. Between the swamp and the lawn is a narrow border of milkweed, raspberry, and sumac, with a scattering of mixed second growth from two to eight feet in height. The altitude at this locality is 450 feet above sea level.

The day had been oppressively hot and humid, with temperatures in the mid-eighties. Light rain fell from about 6 P.M. to shortly before 9 P.M. At 9 o'clock the temperature was 74°F., falling to 72°F. at 1 A.M., with sporadic mist throughout this period. Collecting was done continuously from nine to one. Moths and flies were still appearing in appreciable numbers at one o'clock, although the flight of beetles had died to a mere trickle. The disappearance of beetles occurred rather abruptly between 12:45 and 1:00 A.M.

494 specimens of Coleoptera were taken. These belonged to 18+ families, 76+ genera, and 110 species. Many more specimens might have been taken of some of the dominant forms, such as *Agonoderus*, *Clivina*, *Platynus*, *Tachys*, *Ataenius*, and *Autoserica*. As many specimens as possible were collected of most of the other forms.

At the peak of the flight, between ten and twelve o'clock, it would have been nearly impossible for one person to make a representative general collection. The air was thick with moths, gnats, midges, beetles, mayflies, ichneumonids and tiny wasps of several families, neuroptera, and members of various other orders. Unfortunately, an accurate census of the orders represented was not taken.

The following list is only tentative, and will be corrected and amplified at a later date, when complete identification of the material has been made. It is worth noting that the first six families comprise fully two thirds of the species, and 84% of the individuals.

FAMILIES OF COLEOPTERA TAKEN AT LIGHT
BETHEL, CONN., JUNE 28, 1948

Family	Species	Genera	Individuals
Carabidae	24	(12–?)	235
Scarabaeidae	16	(8–9?)	77
Hydrophilidae	11	(5–6?)	23
Curculionidae	10	(10–?)	33
Lampyridae	7	4	25
Elateridae	6	(3–4?)	20
Staphylinidae	5	(5–?)	8
Chrysomelidae	3	3	13
Haliplidae	3	2	4
Nitidulidae	3	(3–?)	3
Anthicidae	2	1	25
Cerambycidae	2	2	3
Tenebrionidae	2	2	3
Cucujidae	2	2	2
Coccinellidae	1	1	5
Alleculidae	1	1	3
Ostomatidae	1	1	1
Scolytidae	1	1	1
undetermined	10	(?)	10

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

SCHMIDT BOXES—in perfect condition, for sale from the Nicolay Collection, with 9 metal cases of "Cambridge Can" type. Each case with 28 boxes, $75.00. Also one new Ward's wooden case. Send inquiries to the editor.

FOR SALE—4,000 unit trays, balsa pinning bottoms, white paper throughout, heavy caliber cardboard base. Sized to fit Cornell drawers except the 7" long units. $1.00/dz. Free sample on request. Cornell and California Academy drawers available. Bio Metal Associates, P.O. Box 346, Beverly Hills, California.

WANTED TO BUY—ELMIDAE, DRYOPIDAE, LIMNICHIDAE, PSEPHENIDAE, EUBRIIDAE from exotic areas; will determine American species. Adults and larvae. Harry G. Nelson, Dept. of Biology, Herzl Jr. College, Chicago 23, Ill.

PSAMMODIUS (SCARABAEIDAE: APHODIINAE) from North, Central, and South America wanted for revisional study. Will be glad to determine specimens for privilege of examination. O. L. Cartwright, Div. of Insects, U. S. National Museum, Washington 25, D. C.

HELODIDAE AND DASCILLIDAE of the world. Studying these families and would be glad to receive specimens in exchange for Australian material. J. W. Armstrong, "Callubri," Nyngan, N.S.W., Australia.

WANTED—Bull. Buffalo Soc. Nat Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera*. I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

CICINDELIDAE-CARABIDAE— Will determine European material of the genus *Carabus*. I can offer German species of *Cicindela* and *Carabus*.. Would like to receive specimens of these genera from any place in the world. A. Korell, 16 Kassel-Nordshausen, Buehlchenweg 3, Hessen, American Zone, Germany.

WANTED FOR IMMEDIATE STUDY—Paussid beetles especially from America and from the Indo-Australian Archipelago including New Guinea and the Philippines. P. J. Darlington, Jr., Museum of Comparative Zoology, Cambridge 38, Mass.

ITALIAN BEETLE COLLECTION FOR SALE—200 boxes with glass covers which contain 25,000 specimens representing 3,200 species (one-third the species which occur in Italy) including 10 types and many co-types of new species. Well mounted and carefully conserved. Offers are desired. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

MEDITERRANEAN SCARABAEIDAE COLLECTION FOR SALE—7,000 specimens representing 600 species and 100 genera, with 3 types of new species described. Collection highly specialized. Offers are desired. Also will supply small collection of Italian coleoptera of any family. Dr. A. Focarile, Jr., Via Palestrina 22, Milano, Italy.

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THE COLEOPTERISTS' BULLETIN

Volume IV AUGUST, 1950 Number 4

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In Memoriam

HERBERT SPENCER BARBER 1882-1950

PUBLISHED BIMONTHLY BEGINNING WITH FEBRUARY BY:
THE COLEOPTERISTS' SOCIETY

THE COLEOPTERISTS' SOCIETY

The Coleopterists' Society was founded on October 12, 1949, to increase interest in the insect order Coleoptera and to improve the study of it, by promoting research, providing for publication, and encouraging cooperation among students.

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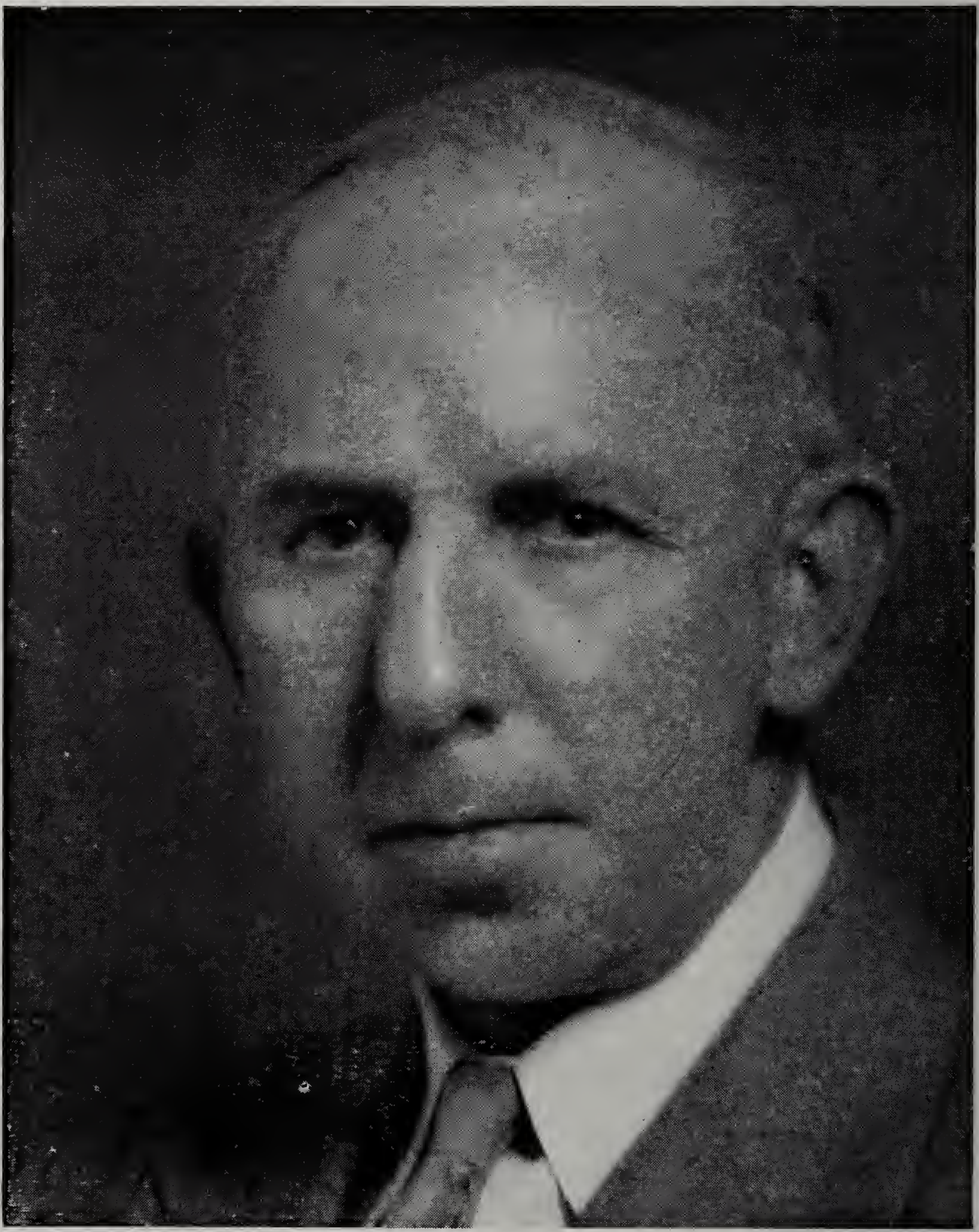
In Memoriam

HERBERT SPENCER BARBER 1882-1950



THE COLEOPTERISTS' BULLETIN

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HERBERT SPENCER BARBER 1882-1950

I have lost a friend. Herbert S. Barber died on June 1, 1950. He was a naturalist of wide interests; his biological and taxonomic studies were earnest and thorough; a keen observer and excellent collector, he had imagination and ideas in advance of his time.

In July 1909 I was employed by the Bureau of Entomology in the Division of Forest Insects. Having been an amateur collector of beetles, I soon met Herbert and his mentor, Dr. E. A. Schwarz, who were working on Coleoptera in the old National Museum building. He was very helpful in identifying insects and in suggesting methods and devices for rearing and photographing insects (in glass cells filled with distilled water). Since we were both enthusiastic canoeists, swimmers, and ice skaters, there were many pleasant collecting trips along the banks of the Potomac River in both summer and winter. Insects of many kinds were bagged.

A member of the Washington Biologists' Field Club, "H. S." spent much time at Plummers Island, Maryland, with Dr. Schwarz, with whom there was almost a father and son relationship. As his guest I learned of his biological studies of *Phengodes* and of his ingenuity in developing special rearing earthenware cones for this beetle and plaster of Paris cells for *Micromalthus*. His discovery of birth by larvae, or paedogenesis, in the life cycle of this latter beetle was brilliant. On Cupids Bower Island, Maryland he found the remarkable wood-boring roach *Cryptocercus*. Many a night was spent in some woodland meadow studying the flashings of fireflies and attempting to correlate these different types of flashings specifically with the insects even though there seemed to be no differences in the structures of the beetles.

Always ready to stop his own work, he helped others to delve in old collecting notes of Hubbard or Schwarz, gave advice, philosophized on what is a species, or adjusted a microscope. He was of great assistance to Raymond Shannon in his early days; this young friend later made important contributions with his studies of Diptera. Herbert loved children; he often took sons and daughters of friends on outings to share with him his love of nature. He lost a son in World War II.

With others, such as G. C. Champion of England, Silvestri of Italy, and von Rosen of Germany, Herbert and I collected on the upper Potomac and gave these men the thrill of shooting "white water" rapids in a canoe. Longer trips included Dismal Swamp in Virginia and the lower Everglades of Florida. At Paradise Key, Florida, we explored the Everglades prairies and woodlands and collected by day sweeping or beating. At night in the hardwood "hammocks" a table covered with a white cloth and a light was moved about as insects were shaken from overhead jungle vegetation. "H. S." was much interested in a pre-dawn mating flight of a large tabanid and shot down adults to determine that the noisy tree-top swarm was composed largely of males.

While in California, Herbert collected the odd *Grylloblatta* and noted its habits.

He trapped specialized cave beetles and showed me how to bait-trap the rare *Cychrus.* Myrmecophiles and termitophiles interested him, as did very small beetles living in the pores of fruiting bodies of fungi.

Barber guided me in studies of wood-boring beetles and leaf-mining hispids, and he described *Colaspis pini,* a spectacular needle-browner of the Gulf States. He loved Cape Henry, Virginia and there discovered in a partly sand-dune-buried cypress tree, *Kalotermes approximatus* Snyder known only from Florida. We took our friendship for granted; there is no *snyderi* among beetles, nor any termite *barberi*.

On a recent western field trip for the Division of Foreign Plant Quarantine, Herbert's cooperation was appreciated by the inspectors, which gave his morale a lift. He greatly enjoyed collecting at White Sands, New Mexico, and took some marvelous photographs to remind him of those happy days.

Very much interested in the Entomological Society of Washington, ''H. S.'' deplored the recent lack of notes and exhibition of specimens; the lively discussions of earlier days appealed to him. He felt that he could not accept the offered presidency, largely on account of innate modesty.

This was the man as I saw him; earnest but friendly, helpful, and happy in his work although troubled in family life and with some feeling of lack of appreciation by his contemporaries; naturally I cover only a small portion of his productive life. He had a full life and leaves many friends in this country and abroad. Working until the last and leaving unpublished many of his important findings, he passed away in his sleep. His friends hope some of his studies in manuscript form can be published.

The following are some of the more important details of his life:

Herbert Spencer Barber was born at Yankton, South Dakota, on April 12, 1882. He had very little formal education but had great native ability; after attending public schools at Orlando, Florida, two years were spent in high school at Washington, D. C. As a child he became interested in insects. In 1898 Herbert became an assistant preparator of insects in the National Museum at Washington, working until 1902 with Dr. E. A. Schwarz, his guide and friend, and again from 1904 to 1908. From 1902 to 1904 he was employed by the Bureau of Entomology, U. S. Dept. of Agriculture, and spent some time studying cotton insects in the field and in the southern states. From 1908 on his whole life was spent as a specialist on beetles in the Division of Insect Identification of the Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture. He was stationed in the National Museum building and closely associated with Dr. Schwarz until the latter's death in 1928.

Barber travelled and collected insects in this country, Mexico, and Guatemala. He became an internationally recognized authority on chrysomelid, bruchid, and lampyrid beetles. Consulted by entomologists from many parts of the world, he generously gave unpublished data to others. He greatly assisted in investigations of insects of many kinds, due to his broad knowledge, but especially of coleoptera.

In addition to knowledge of insects he was a naturalist of wide experience. "H. S." knew animals, birds, snakes, flowers, and trees. He could smell a copperhead nest. He was an excellent photographer, an expert shot with rifle or revolver, and clever in a canoe in rapid water.

Barber was a member of the American Association for the Advancement of Science, the Entomological Society of Washington, the Coleopterists' Society, the Entomological Society of America, the American Association of Economic Entomologists, the Biological Society of Washington, the Washington Academy of Sciences, the Washington Biologists' Field Club, and the Potomac Appalachian Trail Club.

Survivors include his former wife, Mrs. Vera Barber of Palo Alto, Calif.; his daughter, Miss Elsie Louise Barber of Palo Alto; a sister, Mrs. Harold L. Palmer of Washington, D. C., and a brother, Victor S. Barber, of San Francisco. Many workers in entomology who were so fortunate as to have been inspired by his enthusiasm will mourn his loss.

THOMAS E SNYDER

Washington, D. C.
July 5, 1950

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Compiled by ROSS H. ARNETT, JR.

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Additions to the list of publications available:

Bull. Zool. Nomencl.—The Bulletin of Zoological Nomenclature.
Agric. Tecn.—Agricultura Tecnica
Ann. Soc. Ent. France—Annales de la Société entomologique de France.
Mitt. Münchner Ent. Ges.—Mitteilugen der Münchner Entomologischen Gesellschaft.
Kol. Zeitschr.—Koleopterologische Zeitschrift.
Proc. Trans. South London Ent. Nat. Hist. Soc.—Proceedings and Transactions of the South London Entomological and Natural History Society.

Corrections:

Proc. Roy. Ent. Soc. London (A)—Proceedings of the Royal Entomological Society of London, series A.
Proc. Roy. Ent. Soc. London (B)—Proceedings of the Royal Entomological Society of London, series B.
Trans. Roy. Ent. Soc. London—Transactions of the Royal Entomological Society of London.

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Cantharidae

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

OFFERING FOR SALE.—South Indian insects of all orders, especially Coleoptera. All specimens with correct data. P. SUSAI NATHAN, Naturalist, Kurumbagaram P. O., via Karikal, Tanjore District, South India.

MALACHIIDAE, CANTHARIDAE, DASYTIDAE, DRILIDAE, PHENGODIDAE of the world, determined, exchanged, bought by WALTER WITTMER, Casilla de Correo, 1043, Buenos Aires, Argentina.

EXCHANGE AUSTRIAN high Alps beetles for American species. DR. H. WILCKE, Kössen/Tyrol, Austria.

INSECT PINS, noncorrosive, first class, in all sizes, 1,000 for $1.90, plus 30 cents postage. Will give as a free gift, series of Austrian beetles. Large orders, up to 10% discount given. DR. H. WILCKE, Kössen/Tyrol, Austria.

FOR SALE: Beetle collection, 32 drawer cabinet and library of insect books $200. A. W. SHERTZ, 329 Abbeville Rd., Lancaster, Pa.

SCHMIDT BOXES—in perfect condition, for sale from the Nicolay Collection, with 9 metal cases of "Cambridge Can" type. Each case with 28 boxes, $75.00. Also one new Ward's wooden case. Send inquiries to the editor.

FOR SALE—4,000 unit trays, balsa pinning bottoms, white paper throughout, heavy caliber cardboard base. Sized to fit Cornell drawers except the 7" long units. $1.00/dz. Free sample on request. Cornell and California Academy drawers available. Bio Metal Associates, P.O. Box 346, Beverly Hills, California.

WANTED TO BUY—ELMIDAE, DRYOPIDAE, LIMNICHIDAE, PSEPHENIDAE, EUBRIIDAE from exotic areas; will determine American species. Adults and larvae. HARRY G. NELSON, Dept. of Biology, Herzl Jr. College, Chicago 23, Ill.

PSAMMODIUS (SCARABAEIDAE: APHODIINAE) from North, Central, and South America wanted for revisional study. Will be glad to determine specimens for privilege of examination. O. L. CARTWRIGHT, Div. of Insects, U. S. National Museum, Washington 25, D. C.

HELODIDAE AND DASCILLIDAE of the world. Studying these families and would be glad to receive specimens in exchange for Australian material. J. W. ARMSTRONG, "Callubri," Nyngan, N.S.W., Australia.

WANTED—Bull. Buffalo Soc. Nat. Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

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THE COLEOPTERISTS' BULLETIN

Volume IV October, 1950 Number 5

THE CASEY ROOM: MEMORIAL TO A COLEOPTERIST

Published Bimonthly Beginning With February By:
THE COLEOPTERISTS' SOCIETY

THE COLEOPTERISTS' SOCIETY

The Coleopterists' Society was founded on October 12, 1949, to increase interest in the insect order Coleoptera and to improve the study of it, by promoting research, providing for publication, and encouraging cooperation among students.

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THE COLEOPTERISTS' BULLETIN

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The Coleopterists' Bulletin is conducted in the interest of coleopterists for the publication of short papers and other matter in the general field of coleopterology. Insofar as contributors supply suitable material, it is intended to include: (1) original papers on beetles, on methods and procedures, and on principles; (2) short notes about beetles, collecting, collectors, etc.; and (3) bibliographic aids to the student of taxonomic coleopterology.

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THE COLEOPTERISTS' BULLETIN

Volume IV October, 1950 Number 5

THE CASEY ROOM:
MEMORIAL TO A COLEOPTERIST

Thomas Lincoln Casey, as a coleopterist, will not soon be forgotten by those who are interested in beetles. He was a prominent figure in American coleopterology during much of his life, was an indefatigable worker and author, and has been the subject of much discussion because of his unorthodox conceptions and methods. His biography and a description of his magnificent collection has been published by L. L. Buchanan in the Smithsonian Miscellaneous Collections, and several papers have appeared that contain comments upon his published work. However, little attention has been given in print to the use and maintenance of the bequest after its establishment as part of the national collections. It is our purpose here to describe the present state of the collection, its availability for use by coleopterists, and its physical arrangement.

Considered in the broadest sense, the Casey Collection of Coleoptera consists of two parts, the specimens and the library, each of which is outstanding among private collections. The 116,700 specimens remain today in much the same state as the Colonel left them, except for transfer to newer storage equipment. Over 76,000 of these are named, representing 19,245 species or varieties, and including 9,268 holotypes. The library, on the other hand, which originally consisted of 900 volumes and several thousand separates, has been augmented by gift and purchase of about 125 volumes and thousands of separates, as well as by the binding or rebinding of 130 volumes.

THE BEQUEST

When Colonel Casey died on February 3, 1925, his entire collection was housed in his apartment in Washington, D. C. In his will, he bequeathed all his entomological and conchological collections, each with its comprehensive library, to the United States National Museum. The beetles and corresponding books were transferred to the Natural History Building and arranged in a room overlooking The Mall and part of southwest Washington.

The beetles were contained in 260 Schmitt-type boxes in wooden cabinets. Casey's unusual ability and exacting temperament enabled him to get an astonishingly large number of specimens in some of the boxes, as is shown by the fact that the *average* number per box was about 450.

The specimens were largely North American, collected in great part by Casey himself but with considerable numbers from such other collections as F. W. Nunenmacher, T. G. M. Levette, A. Fenyes, H. F. Wickham, G. W. Dunn, J. F. Tucker, J. H. Emerton, and J. H. Keen. There were also unusually large series of named European species, an exceptional and particularly valuable feature in American collections. Other parts of the New World were well represented in certain parts of the collection, especially Mexico, Panama, and Brasil (H. H. Smith). A small series from South Africa, collected by Casey himself form an important addition.

The other major item in the bequest was Casey's collection of mollusks and the library on that subject. He published one major paper on the family Pleurotomidae (Turritidae), of which he had about 1000 specimens. In this work he proposed a few new species; but his chief interest seems to have been in the genera and subgenera, of which he proposed many as new. Also included were 20 000 to 30,000 fossil mollusks of Tertiary age, collected in the lower Mississippi Valley and along the Gulf Coast. This outstanding collection contains many holotypes as well as older species and examples of genotype species.

THE CASEY ROOM

Room 428 on the top floor of the Natural History Building of the United States National Museum is known as The Casey Room. It is used exclusively to house the Casey beetle collection and library and is equipped for the use of coleopterists in studying the collection. The room is 18 by 21 feet and faces south across the trees of The Mall to the other buildings of the Smithsonian Institution group. It contains 7 50-drawer steel storage cases, 180 feet of book shelves, and five letter file cases for storage of separates. It has also two large work-tables, one of Casey's own tables, and the 24-inch globe from the Colonel's study. A large portrait of the Colonel hangs on one wall, the gift of Mrs. Casey, and in addition mementos of both his scientific career and childhood are to be seen.

The Casey Room is open to any coleopterist who wishes to study the collection. For this purpose Mrs. Casey has generously provided two binocular microscopes. One is a narrow-field Zeiss with magnifications from 10X to 204X. The other is a new wide-field Spencer with magnifications from 18X to 96X. Other equipment is available from the Division of Insects, if needed.

THE COLLECTION

The Casey Collection of beetles was transferred from the original boxes by L. L. Buchanan of the U. S. Department of Agriculture. Putting only half time on this job, Mr. Buchanan worked from April 1, 1926, until December 30, 1930, to put the collection into such shape that it could be safely stored, readily used, and still show exactly how Colonel Casey had left it. Each species was pinned into a separate tray, each tray labelled as Casey had labelled the species, each specimen identified by a number on a label showing its position in the series in Casey's box, and all irregularities or unusual circumstances noted on a card pinned into the tray.

In this way the collection was transferred to the most modern, convenient, and safe storage system without in effect disturbing the original arrangement in the Casey boxes. On each pin there is now a label which permits identification of the specimen's correct place in the collection. The accidental transposition of

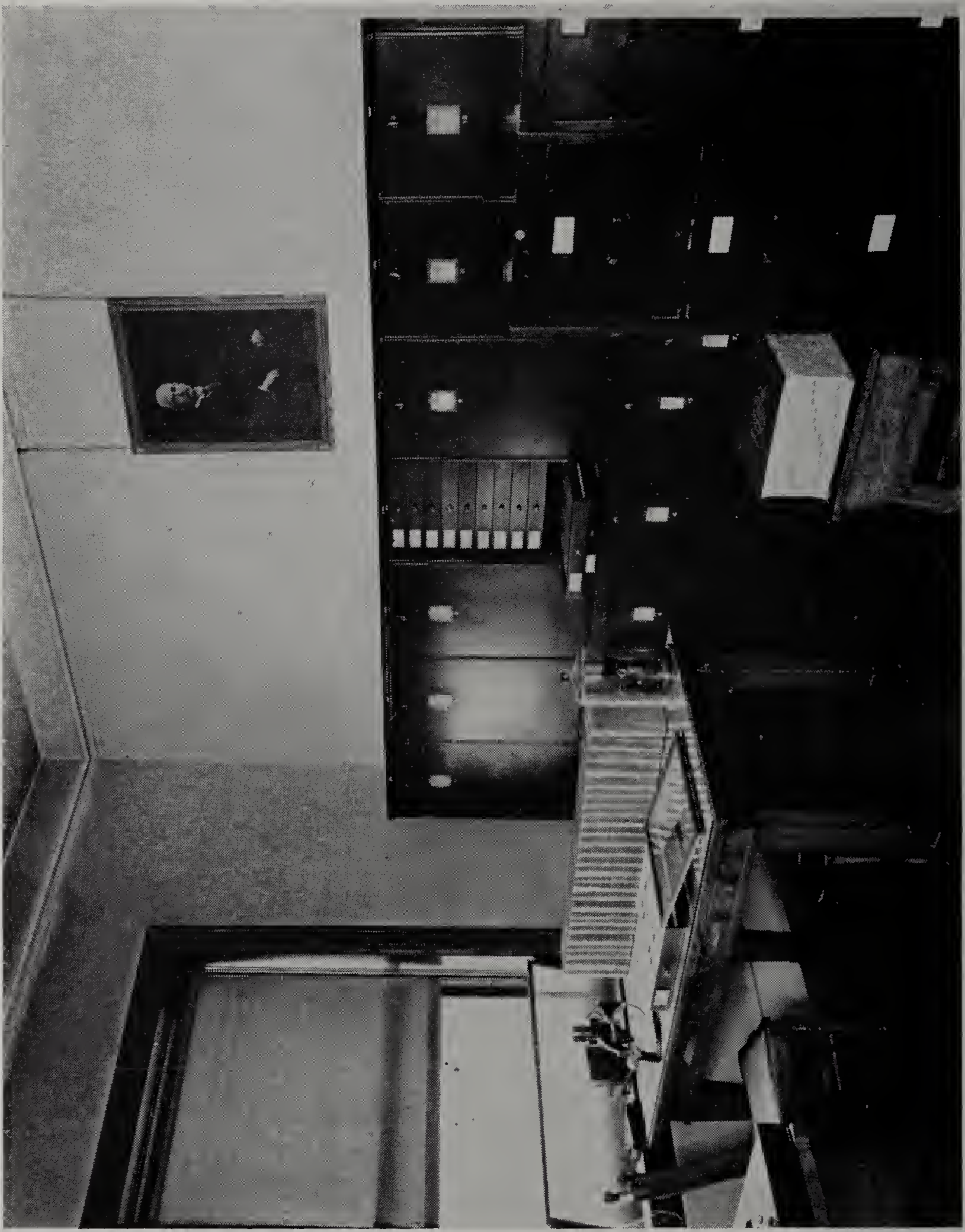

Figure 1. The Casey Room, showing part of the collection.

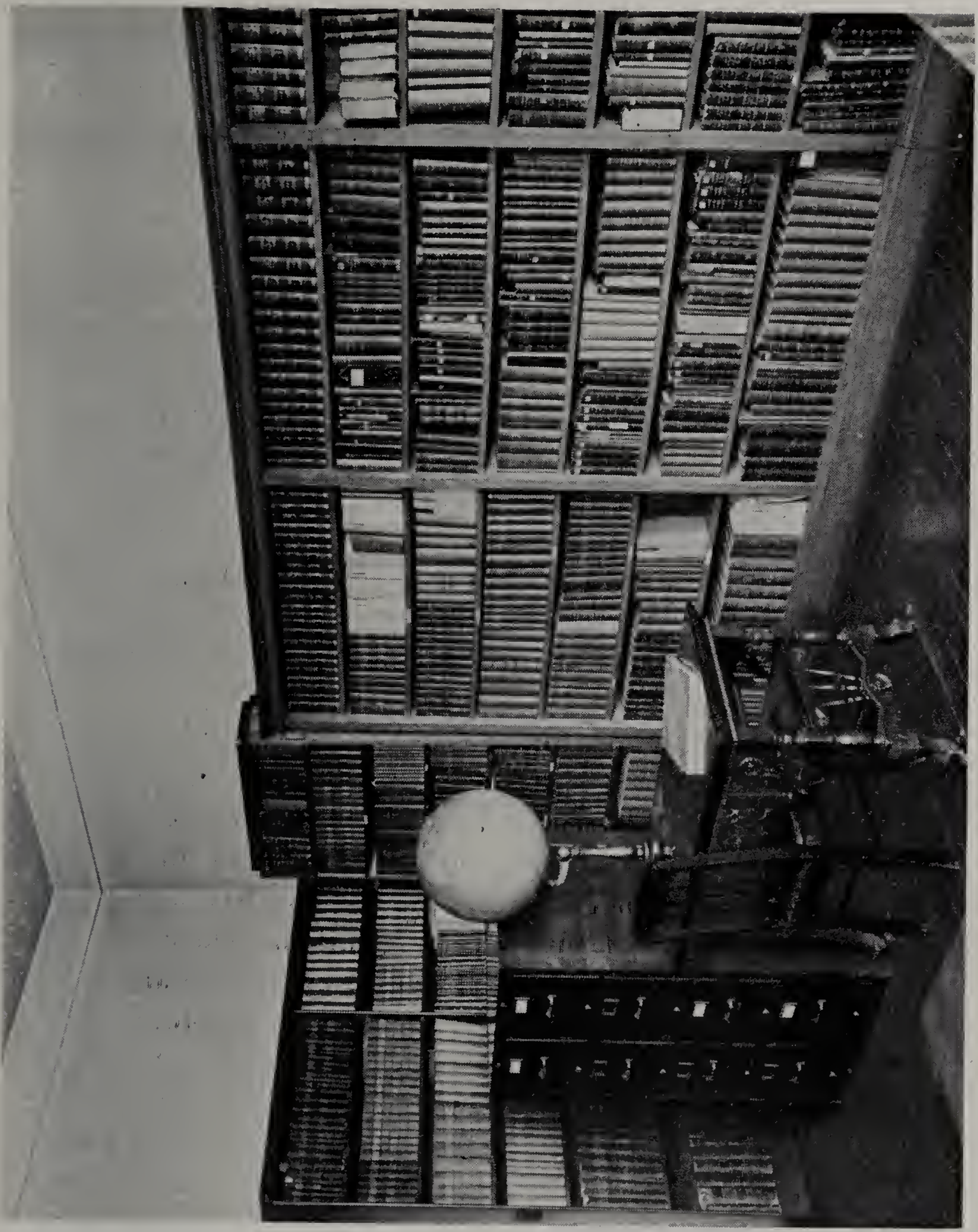

Figure 2. The Casey Room, showing part of the library.

specimens can always be detected with ease and certainty and corrected immediately.

Two of the most conspicuous features of the Casey Collection, aside from its size and the astounding preponderance of type material, are the uniformity of the mounting and the unusually small size of the locality labels. Casey remounted all specimens received from outside sources, for in spite of the time involved, he considered careful mounting to be a prime necessity. When one realizes the extreme care with which he examined his specimens, and the minute details which he wished to record, it is easy to understand that uniform mounting of high quality was a *sine qua non,* not merely an esthetic whim.

The unusual style of labelling adopted by Casey was the direct result of his methods and equipment for examining the specimens. He used a binocular compound microscope of old style, with very small field but high power. The short focal length of this instrument made it impossible to examine the ventral sides of specimens if large or even moderate-sized locality labels were on the pin, and therefore Casey adopted a special system for recording localities on a tiny label only large enough for three or four letters.

This unusual scheme for indicating the locality is based on a small State abbreviation label, to which was added various marks or symbols—dots, dashes, underscores, and crosses—in black or red ink. The nature, number, arrangement, and color of these marks on the tiny label give the clue to the definite locality within the state and sometimes to additional information as to date and collector. For example, Ari with black lines drawn above and below the letters denotes Sabino Canyon, Santa Catalina Mountains, Arizona, collected by J. F. Tucker. Similarly, Cal with a red dot below the C denotes Calistoga, Napa County, California, collected by Casey himself in June and July 1885. There are about 160 different kinds of these cryptic labels represented in the collection. A complete list of them, showing their precise locality equivalents, arranged alphabetically by states, is kept on file in the Casey Room with the collection, so that the exact locality of any specimen can be quickly ascertained.

Many of the drawers in the cabinets appear to contain little beside type material, of which each specimen bears a red type label with its U.S.N.M. type catalog number. (Only one number is assigned to each species represented by type material, so that the 9,268 entries in the type catalog represent many more specimens than that.) This impression is fairly near to the truth in some groups, such as the Cryptophagidae, the Aleocharinae, and the Barinae. In some families, however, there is almost no type material, as in the water beetles and the Chrysomelidae. On the average, nearly half of the species named in the collection were described by Casey and consist of the holotype and sometimes a few paratypes.

The basic thesis in the maintenance of the collection at the present time is that it be kept so as to throw as much light on Casey's published work as possible and supplement his writings by providing an opportunity to check back to the original source of his observations. Nothing shall be done to disturb this major use of the collection. This does not mean that the collection is to stagnate. Unidentified material and series that were not involved in Casey's studies are available for further study on much the same basis as other specimens in the national collections. Whenever the need is recognized, and the ability of the applicant is demonstrated, further study and preparation of Casey's material, including the types is permitted. Many of the holotypes have been dissected or remounted, with due regard for their unique importance and careful preservation of all the features studied by Casey.

It is partly because of the controversial nature of some of Casey's work that these specimens are of such importance in aiding in interpretation of that work. The collection is maintained as a separate unit (the only collection of insects so isolated in the National Museum) only because of this need to check back on the published accounts. The types are not enough; in many cases it is necessary to check what Casey labelled as some older species, or compare species to understand his keys.

During part of Casey's life and the years immediately after his death, his work was regarded by some coleopterists as an ex-

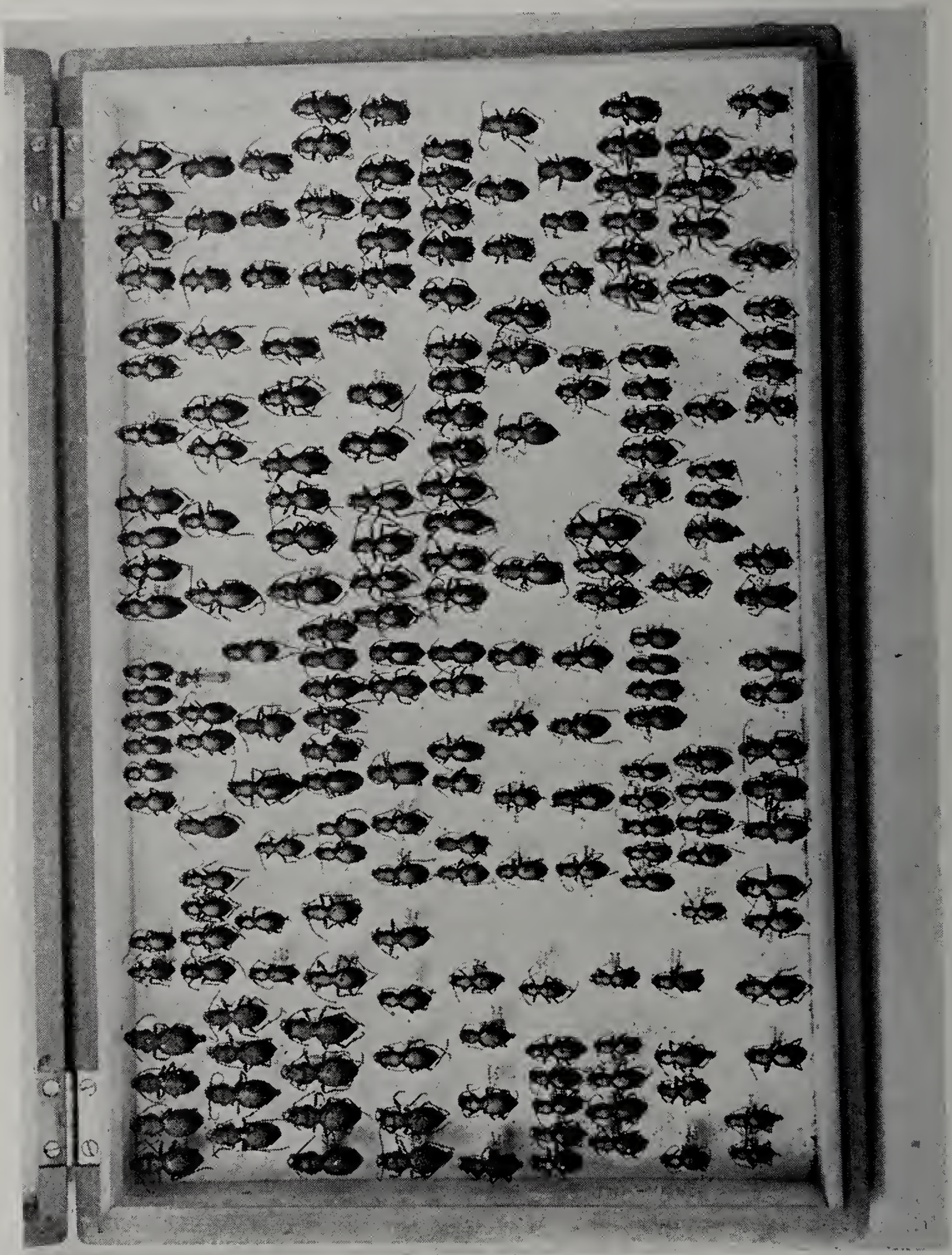

Figure 3. Casey's box of Omus, before transfer.

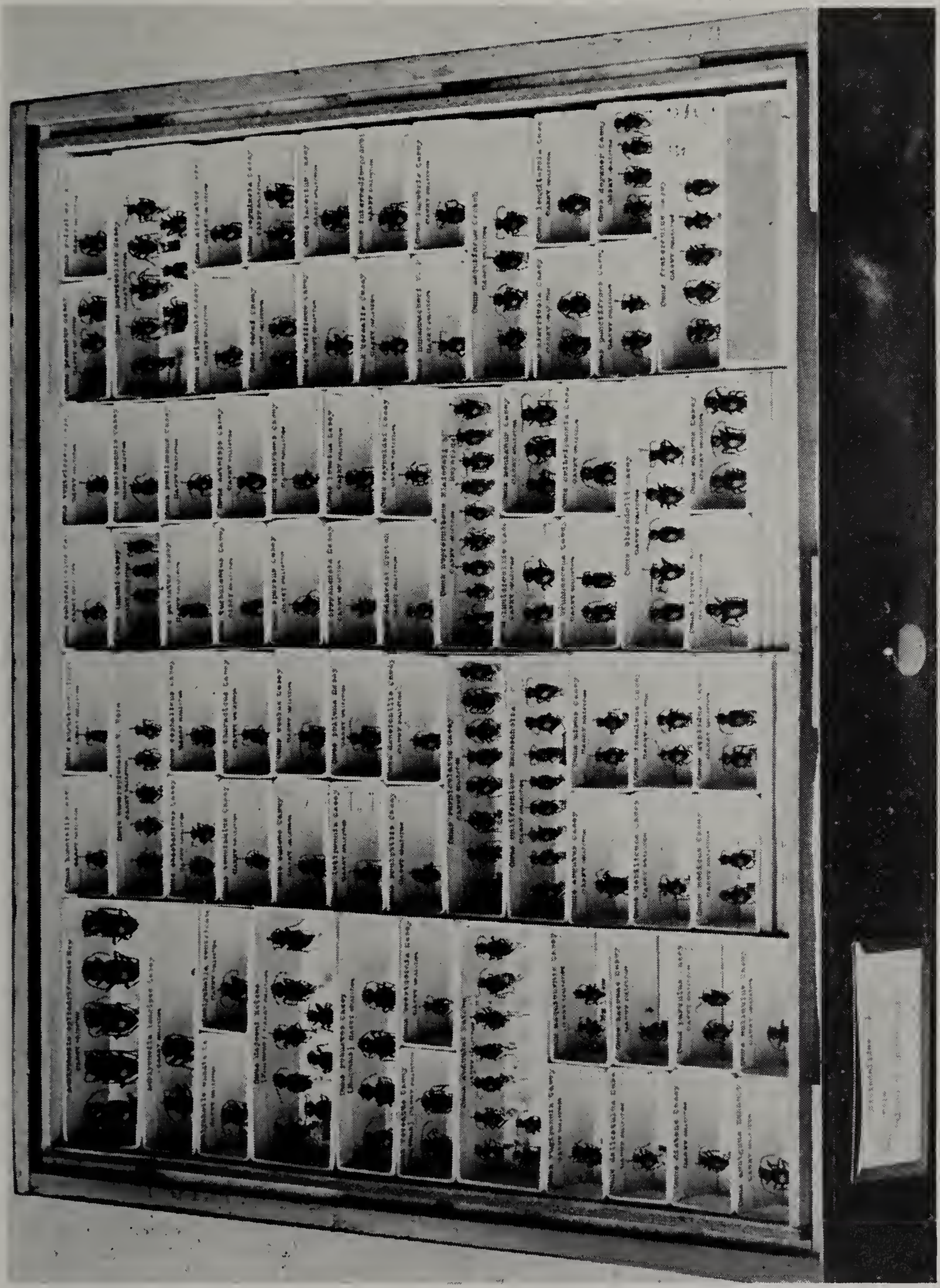

Figure 4. One drawer of Omus, after transfer.

ample of extreme splitting. He was accused of naming all the specimens in one series as distinct species, of not taking into account intra-specific variation, and even of discarding intermediates and non-typical specimens. After twenty-five years, however, a much more accurate and well-founded view of his work is being accepted by those who have restudied his material.

In some groups, particularly those in which the specimens are large (Cicindelidae, Cerambycidae), the final decision will probably be that many of Casey's species are not really species. But Casey himself recognized this possibility, and he often noted that what he called species were merely separately recognizable entities whose exact systematic value was unknown to him.

In the families of small-sized beetles, several of which were extensively monographed by Casey, his observations and his judgments of species have been very largely substantiated. He made some errors, as we all do; he sometimes missed the truth because of inadequate material; and he sometimes was right when his critics thought him wrong. Whether his species are accepted or not, his influence on the study of beetles was very great. Few coleopterists can afford to ignore the principles he enunciated and followed, and few among us could fail to profit from his example of diligence and integrity in searching out the facts of the classification of beetles.

THE CATALOG OF THE COLLECTION

One other record is available in the Casey Room of the details of the Casey Collection as received. This is a bound volume of 859 typewritten pages containing a catalog of all the specimens in the collection. This manuscript was prepared in 1933 and 1934 under Mr. Buchanan's supervision, through funds from the Thomas Lincoln Casey Fund.

This book lists in systematic order all the species named in the Casey Collection. It lists for each species the total number of specimens present and the number of types. It has a summary arranged by families showing the total number of named forms, the number of holotypes, the number of specimens—named and unnamed, and the total number of specimens. This table gives a rough indication of the importance of the collection in each family.

THE LIBRARY

Casey's library on beetles was an unusually fine one. It included sets of most of the major works on beetles, scores of separate works, long runs of many journals, and about 80 bound volumes of separates arranged by authors. The portions that were not bound at the time of the Colonel's death have since been bound by Mrs. Casey, who has taken a great interest in the Casey Room as a memorial to her late husband and has generously contributed toward making it more useful to coleopterists.

Many of the older sets of works on beetles are not easy to obtain. Yet Casey had complete sets of Die Naturgeschichte der Insecten Deutschlands, Lacordaire's Genera des Coléoptères, Laporte and Gory's Histoire Naturelle des Insectes Coléoptères, Schönherr's Genera et Species Curculionidum, Thomson's Skandinaviens Coleoptera, Peringuey's Coleoptera of South Africa, Gemminger and Harold's Catalogus Coleopterorum, Olivier's Encyclopédie Méthodique, Motschulsky's Études Entomologiques, Burmeister's Coleoptera Lamellicornia, Candèze's Monographie des Elatérides, and many others. The Junk-Schenkling Coleopterorum Catalogus was complete as far as issued (about 80 parts) and has since been completed and bound by Mrs. Casey. The Biologia Centrali-Americana was of course also on hand. Prominent in the library now are two complete sets of Casey's own papers, each consisting of twenty-four volumes.

The excellent representation of journals includes runs of nearly all American entomological journals published between 1890 and 1925, in most cases starting with volume 1. The European journals include the Annales de la Société Entomologique de France (1860-1925, with the separate Bulletin, 1912-1925), Transactions of the Entomological Society of London (1880-1908), Deutsche Entomologische Zeitschrift (1880-1909), Revue d'Entomologie (complete), Wiener Entomologische Zeitung (vol. 1—1909), Annales de la Société entomologique de Belgique (1881-1900) (with Mémoires 1-17), Stettiner Entomologische

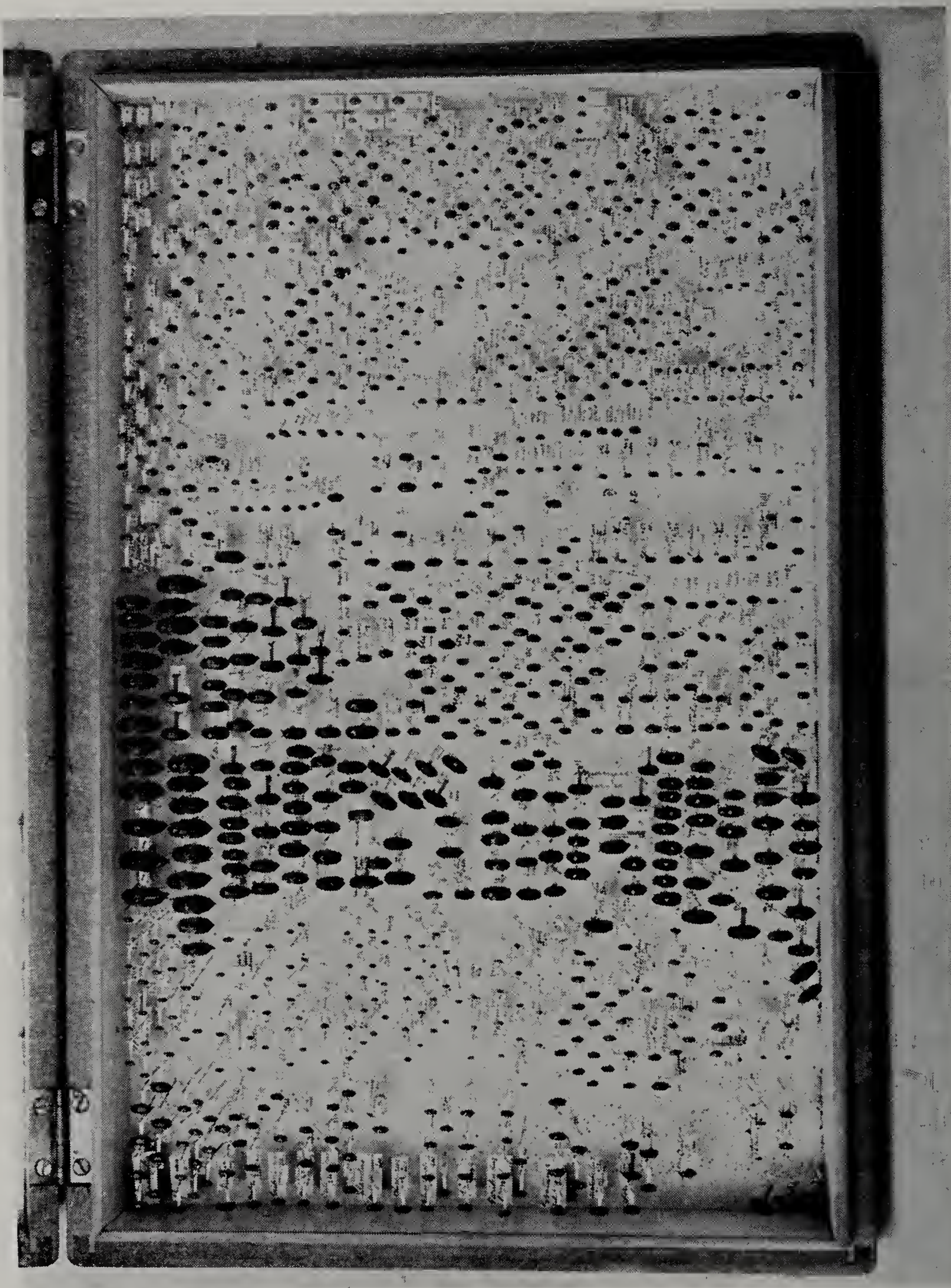

Figure 5. Casey's box of Dermestidae, showing crowded condition.

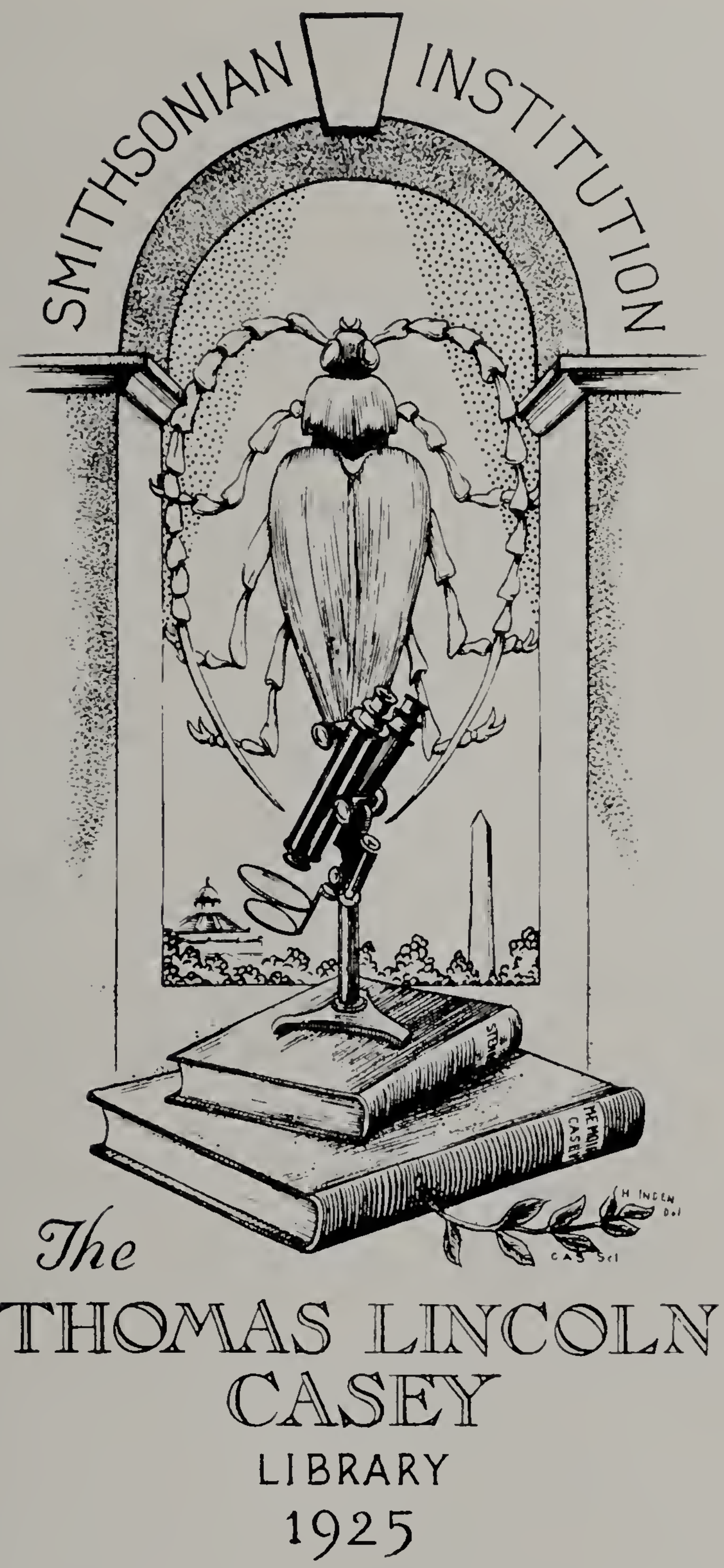

Figure 6. The bookplate used in the Casey Library. The microscope illustrated is the one Casey used throughout his career. The buildings shown are the Washington Monument and the Library of Congress, which were constructed by Casey's father. The beetle is a conventionalized Prionid.

Zeitung (1879-1909), and others. Of outstanding interest are a full set of the Proceedings of the Academy of Natural Sciences of Philadelphia from volume 1 (1841) to volume 75 (1923) and of the Journal (series 1 complete and series 2 volumes 1-13, 1817-1908).

Although the collection must remain about as Casey used it, without additions from later sources, the library will decrease in usefulness to workers in the Casey Room unless it is kept up to date. Since there are no public funds available for this purpose, progress toward this end has been less than is desired. Nevertheless, considerable has been accomplished. Several members of the National Museum staff and several other entomologists have contributed sets of journals and partial runs of others. In this way, and by exchanging duplicates, the Annals of the Entomological Society of America set has been completed; the Proceedings of the Entomological Society of Washington, Entomological News, the Bulletin of the Brooklyn Entomological Society, and the Journal of the New York Entomological Society sets have been nearly completed; and complete sets of the following have been added: Entomologische Mitteilungen, Pan-Pacific Entomologist, Revista de Entomologia, Microentomology, and The Coleopterists' Bulletin.

In usefulness to the coleopterists using the Casey Room, the collection of separates, both bound and unbound, does not occupy second place. Casey obtained nearly complete sets of the works of many early coleopterists, including LeConte, Melsheimer, Say, Mannerheim, Motschulsky, Mäklin, and Chaudoir, as well as of the more recent workers such as Horn, Schaeffer, Leng, Pierce, Fall, Wickham, Hopkins, Schaufuss, Crotch, and others. He also had large numbers of separates of Kraatz, Fauvel, Sharp, Mulsant, Reitter, Raffray, Wasmann, Waterhouse, Kiesenwetter, Solsky, etc., etc. To this fine assemblage has recently been added a large number of separates from several sources. Many coleopterists have responded to an appeal by depositing complete sets of their papers. Among these may be mentioned C. A. Frost, W. S. Fisher, E. G. Linsley, G. N. Knowlton, M. H. Hatch, F. E. Blaisdell, E. C. VanDyke, J. N. Knull, M. W. Blackman, L. W.

Saylor, and many others. Several substantial collections of separates have been turned in by individuals who no longer needed them, adding many hundreds of items. These additions add very greatly to the usefulness of the Casey Library.

From the time of his appointment to transfer the collection to new cases and to prepare it so that it could be safely used, Mr. L. L. Buchanan has been designated by the Museum as Specialist for the Casey Collection. He has been more closely associated with the collection than anyone else since Colonel Casey's death. At the time of his retirement in 1949 he purchased and placed in the Casey Room a welcome addition to the library—a fine new copy of Webster's Unabridged Dictionary.

VISITORS

During the 20 years that the Casey Collection has been available for consultation, many coleopterists have taken advantage of its facilities. No record or guest book has been kept of these, but among them were four distinguished European coleopterists: Walther Horn, F. Rambousek, Malcolm Cameron, and J. B. Corporaal. Among the many American and Canadian visitors, a few may be recalled here: E. C. Van Dyke, R. Glen, R. W. Dawson, F. J. Psota, W. F. Barr, J. R. Bowman, H. W. Wenzel, C. H. Hoffmann, O. Park, E. G. Linsley, A. S. Nicolay, M. A. Cazier, C. H. Seevers, L. W. Saylor, V. M. Tanner, B. Benesh, P. J. Darlington, K. W. Cooper, A. C. Davis, W. J. Brown, G. H. Dieke, H. R. Dodge, Th. Dobzhansky, C. T. Parsons, M. Robinson, M. W. Sanderson, B. E. White, and H. S. Dybas. Many others have used the Casey Room or visited it briefly.

These 20 years have seen considerable changes in the staffs of the Division of Insects of the National Museum and the Division of Insect Identification of the U. S. Department of Agriculture, but all the coleopterists on both of these staffs make constant use of the Casey Room. The following have been or now are in this category: R. H. Arnett, Jr., W. H. Anderson, H. S. Barber, M. W. Blackman, R. E. Blackwelder, A. G. Böving, L. L. Buchanan, O. L. Cartwright, E. A. Chapin, W. S. Fisher, B. E. Rees, P. C. Ting, J. M. Valentine, G. B. Vogt, and R. E. Warner.

THE CASEY FUND

Shortly after the death of Colonel Casey, while plans were being made for the future of the collection, Mrs. Casey established a special fund under the Smithsonian Institution "for maintenance of the Casey collection, and promotion of researches relating to Coleoptera." The income from this fund, which has subsequently received several other gifts from Mrs. Casey, has been used primarily to publish papers on the taxonomy of beetles. These have all been in the Smithsonian Miscellaneous Collections and are identified by a prominent supertitle—Thomas Lincoln Casey Fund.

Seven works have been published in this series. They are:

1. Buchanan, L. L. Thomas Lincoln Casey and the Casey Collection of Coleoptera. Vol. 94, No. 3, 15 pp., 1 pl. [June 8, 1935]
2. Chapin, E. A. Review of the Genus Chlaenobia Blanchard (Coleoptera: Scarabaeidae). Vol. 94, No. 9, 20 pp., 12 figs. [September 23, 1925]
3. Buchanan, L. L. The Genus Panscopus Schoenherr (Coleoptera: Curculionidae). Vol. 94, No. 16, 18 pp., 2 figs. [February 6, 1936]
4. Dobzhansky, Th. Beetles of the Genus Hyperaspis inhabiting the United States. Vol. 101, No. 6, 94 pp., 6 pls. [December 31, 1941]
5. Chapin, E. A. Review of the New World Species of Hippodamia Dejean (Coleoptera: Coccinellidae). Vol. 106, No. 11, 39 pp., 22 pls. [June 14, 1946]
6. Dieke, G. H. Ladybeetles of the Genus Epilachna (sens. lat.) in Asia, Europe, and Australia. Vol. 106, No. 15, 183 pp., 27 pls. [January 20, 1947]
7. Glen, R. Larvae of the Elaterid Beetles of the Tribe Lepturoidini (Coleoptera: Elateridae). Vol. 111, No. 11, 246 pp., 40 figs. [April 19, 1950]

R. E. Blackwelder

NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

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WANTED TO BUY—ELMIDAE, DRYOPIDAE, LIMNICHIDAE, PSEPHENIDAE, EUBRIIDAE from exotic areas; will determine American species. Adults and larvae. HARRY G. NELSON, Dept. of Biology, Herzl Jr. College, Chicago 23, Ill.

PSAMMODIUS (SCARABAEIDAE: APHODIINAE) from North, Central, and South America wanted for revisional study. Will be glad to determine specimens for privilege of examination. O. L. CARTWRIGHT, Div. of Insects, U. S. National Museum, Washington 25, D. C.

HELODIDAE AND DASCILLIDAE of the world. Studying these families and would be glad to receive specimens in exchange for Australian material. J. W. ARMSTRONG, "Callubri," Nyngan, N.S.W., Australia.

WANTED—Bull. Buffalo Soc. Nat Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

OEDEMERIDAE—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

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THE COLEOPTERISTS' BULLETIN

Volume IV December, 1950 Number 6

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The Coleopterists' Bulletin

Volume IV December, 1950 Number 6

OCCURRENCE AND RECORDS OF NITIDULIDAE

By George B. Vogt
College Park, Maryland

During the summer of 1942, when he was very much occupied with graduate work at the University of Maryland at College Park and there was little time, even on weekends, for extended collecting trips, the writer turned his attention to the insects associated with sapflows in the grove of oaks surrounding Morrill Hall. Almost daily ten to fifteen minutes were devoted to examining these sapflows. By the end of the season, a very representative collection had been accumulated, containing 33 species of Nitidulidae in addition to 10 species of other families of beetles. Subsequently the writer has made collections from other localities in Maryland, Florida, and the Lower Rio Grande Valley, Texas. Notes on these collections, totalling 63 species, are given in this paper with the intention of supplementing the distributional and biological records cited by Parsons[1] and further to point out certain generalizations about nitidulid occurrence which should be further tested, especially in additional localities.

1. NITIDULIDAE FROM SAPFLOWS IN MARYLAND

The writer has found in the areas covered in Maryland that only certain tree species provide sapflows attractive to beetles. Foremost by far in this group are the members of the white oak group (*Quercus alba* L., *Q. stellata* Wang., *Q. Muhlenbergii* Engelm., etc.), apparently because they are preferred hosts of the carpenter worm *Prionoxystus robiniae* (Peck),[2] the attacks of which cause copious sapflows, and because the saps of this group of trees seem to have a high sugar content or at least they produce fragrant ferments. Members of the black oak group, on the other hand, are less susceptible to *Prionoxystus,* but when attacked produce sour sapflows which, the writer has found to be unattractive to sap beetles.

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[1] Revision of the Nearctic Nitidulidae. Bull. Mus. Comp. Zool., Vol. 92, No. 3, pp. 121-278, pl. 1-13, 1943.

Sapflows in other trees usually occur less frequently and more irregularly except for American elm (and perhaps willow which is attacked extensively by the weevil *Cryptorhynchus lapathi* L.). In some trees, such as red birch (*Betula nigra* L.) and red maple (*Acer rubrum* L.), sapflows seem to occur only as a result of accidental mechanical injury. And, despite years of observation, there are many trees in which the writer has never found sapflows, including hickory, walnut, beech, sycamore, honey locust, black locust, sour gum, and dogwood. Tulip is known to exude sap at wounds but the writer has not checked such places for nitidulids.

Of the sapflows which the writer has seen, aside from those of oaks, those of willow have yielded only *Cryptarcha ampla* Erichson and one of horse chestnut (*Aesculus hippocastanum* L.) was populated only by *Amphicrossus ciliatus* (Oliv.) both cases indicating probable restricted attraction to sap beetles. Red birch and red maple have been found to produce flows more widely attractive, with several to many species of Nitidulidae being found to frequent them; and it is likely that further collecting would add to these lists, perhaps to a point comparable to that of the white oak.[3] Some trees have been found to produce sapflows entirely unattractive to sap beetles. All conifers, with their repellent resins, are included in this category, and probably American elm and cherry should be included also since the writer has never found a single nitidulid at the several flows he has had under observation. It is noteworthy that the sap exuded by American elm is watery while that of cherry is gummy, and neither develops an odor of fermentation nor contains resins. Sweet gum (*Liquidambar styraciflua* L.), which seems not to produce sapflows ordinarily, presents an interesting case. During 1942 the writer watched closely two streetside trees in College Park which were exuding sap from an unknown cause.[4] Their flows were more copious than any seen by the writer and had some resin content as well as a sickening sweet aromatic odor detectable on some days 75 to 100 feet away. It is significant that insects were not at all attracted.

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[2] Craighead 1950, Insect Enemies of Eastern Forests, U. S. Dept. of Agric. Misc. Pub. 657, p. 497, cites this species as boring also in green ash, elm, maple, poplar, and other hardwoods. The writer's failure to find extensive injury in any of these other trees may be due to one or both of two reasons: failure of the attacks to produce conspicuous lesions and sapflows in such trees, and the smaller numbers of these trees in the forests under the writer's observation, which are largely composed of oaks. Certainly infestations of *Prionoxystus* in white oaks are not difficult to find in Maryland.

The most comprehensive and comparable observations by the writer were those made in the grove at the University of Maryland. This group of about 100 large trees is composed mostly of white oak (*Quercus alba* L.) and a moderate number of members of the black oak group. There are also several post oaks (*Q. stellata* Wang.), a few hickories, a single American elm, one horse-chestnut, and one linden. Situated near the center of the campus, the grove is about 1000 feet from the nearest stand of forest trees located to the south. Of the ten sapflows under observation, one was in horse-chestnut, one in post oak, three in members of the black oak group, and five in white oak. Excepting the one in horse-chestnut, all were caused by infestations of *Prionoxystus robiniae* (Peck) and were at the bases of the trees. The wounds were covered with pieces of loose bark which could be turned, and the congregated beetles under them exposed. This technic was necessary since sap beetles do not collect at exposed flowing sap but rather secrete themselves within crevices.

---

[3] Dury (1902 Journ. Cincinnati Soc. Nat. Hist., vol. 20 p. 135) mentions sap of maple trees as being especially attractive to sap beetles in the spring and states further of collecting 20 species and hundreds of individuals under chips on top of a freshly cut maple stump. However, he does not give the species of *Acer* involved nor does he designate the sap-frequenting species in his list of 41 species from Cincinnati.

[4] Subterranean gas leakage could have been involved. Both trees recovered, but today the portions of the trunks that exuded sap are dead with no evidence of insect damage.

The uninterrupted succession of observations at this locality, extending from May 9 to August 9 and again during September and October, enabled the writer to note the apparent effects of meteorological conditions on the occurrence of sap beetles. In general, collecting was best on warm cloudy days and poor to unproductive after clear weather of low humidity and often lower temperature set in. Of course this is not at variance with the occurrence of insects in general, but the writer believes that in the case of Nitidulidae diminished transpiration in humid cloudy weather may have caused the sap to flow more freely and many of the beetles and larvae inside the galleries were flooded out into sight. But in dry weather the flows largely dried up on the surface and much of the population seemed to withdraw out of sight.

Unfortunately the writer did not rear any of the numerous larvae occurring with the beetles listed below. It would have been interesting, among other things, to have determined how many of the long list of diverse species actually develop in the fermenting sap.

Virtually every one of the 33 species listed below was collected at the white and post oak sapflows at the University of Maryland campus during 1942, and the seasonal distribution data given was also largely established by this work. Therefore "College Park" and "white oak" or "post oak" have been omitted from behind each species listed below to save needless repetition. Only when a species has been recorded from another locality or another type of sapflow will such information be recorded.

Colopterus truncatus (Randall). Frequent; May and October; Catonsville.

Colopterus unicolor (Say). Common; May through August; Indian Head and Catonsville; red maple and *Quercus Muhlenbergii* Engelm.

Colopterus semitectus (Say). Common; late April and May; Indian Head; red maple and red birch.

Colopterus maculatus Erichson. Fifteen specimens; May 12 to August 5; Indian Head; *Quercus Muhlenbergii* Engelm.

Colopterus niger (Say). Frequent; May 6 to August 3 and October; red birch.

Carpophilus hemipterus (L.). Eight specimens; June and July.

Carpophilus sayi Parsons. One of the most common species; May 16 to October 4; Indian Head and Catonsville; red maple and *Quercus Muhlenbergii* Engelm.

Carpophilus nitens Fall. Frequent; May 12 to August 3; Indian Head; *Quercus Muhlenbergii* Engelm.

Carpophilus marginatus Er. Not common; May 9 to August 1.

Carpophilus corticinus Er. Five specimens; June, August, and October; Indian Head.

Carpophilus brachypterus (Say). Five specimens; May; Indian Head.

Epuraea rufida (Melsh.). Common; June and July; Indian Head and Catonsville; red maple and *Quercus Muhlenbergii* Engelm.

Epuraea corticina Er. Three specimens; September and October; Indian Head.

Epuraea peltoides Horn. Frequent; June and July; Indian Head.

Stelidota strigosa (Gyll.). Not common; May and September; Indian Head.

Stelidota geminata (Say). Common; May to July and September; Indian Head and Catonsville.

Omosita colon (L.). Two specimens; August 1 to 5. This species is known to occur and to develop in old carcasses.

Prometopia sexmaculata (Say). Not common; May to June and July; Indian Head; red maple.

Lobiopa setosa Harold. Frequent; June, July, and August; Indian Head. This species is generally regarded as rare.

Lobiopa undulata (Say). Probably the most abundant sap beetle; May through October; Indian Head and Catonsville; red maple, red birch, and *Quercus Muhlenbergii* Engelm.

Lobiopa brunnescens (Blatchley). Two specimens; June 14 to 15. This species is known in the literature from only a few specimens from Covington, La., and Martha's Vineyard, Mass., not counting the type and paratype from Florida.

Phenolia grossa (F.). Several specimens; June.

Amphicrossus ciliatus (Oliv.). Common; May through July and October; Indian Head and Catonsville; horse-chestnut. This species occurred in great numbers and at the exclusion of all other sap beetles at the horse-chestnut sapflow. This occurrence is interesting in view of the varied community that attended white oak sapflows 100 feet away.

Cychramus adustus Er. Three specimens; May and June; Catonsville.

Pallodes pallidus (Beauv.). Several specimens; June.

Oxycnemus histrina (LeC.). Four specimens; June 9 to 27. This species, which looks so much like a *Hister,* has been recorded consistently from the stinkhorn fungus (*Phallus impudicus*), with the exception of Dury's[5] record of it from Cincinnati, Ohio in a heap of old grass cuttings in which he found a total of 118 species of Coleoptera.

Cryptarcha ampla Er. Very common; May through July; Indian Head and Catonsville; willow, red maple, and *Quercus Muhlenbergii* Engelm.

Cryptarcha strigatula Parsons. Common; June through August; Indian Head and Catonsville.

Cryptarcha concinna Melsh. Common; May through August; Indian Head.

---

[5] Bull. Brooklyn Ent. Soc., vol. 9, pp. 101-103. 1914.

Glischrochilus obtusus (Say). Frequent; May through August; Indian Head and Catonsville.

Glischrochilus fasciatus (Oliv.). Common; May through October; Indian Head and Catonsville; red maple, red birch, and *Quercus Muhlenbergii* Engelm.

Glischrochilus sanguinolentus sanguinolentus (Oliv.). Four specimens; October; Indian Head; *Quercus Muhlenbergii* Engelm.

Glischrochilus quadrisignatus quadrisignatus (Say). Common; June through October; Indian Head and Catonsville; red maple.

Since such a large portion of the white oak sapflow insect community on the University of Maryland campus was found to be composed of sap beetles, exception is made here to list, for the sake of completeness, the other insects observed in this habitat.

Coptodera aerata Dej. (Carabidae). Several; June, July, and October.

Hololepta lucida LeC. (Histeridae). Two; October.

Hister abbreviatus F. (Histeridae). Six specimens; May and June.

Nosodendron unicolor Say (Nosodendridae). Several; June.

Nausibius clavicornis (Kug.) (Cucujidae). Common; June and July.

Laemophloeus sp. (Cucujidae). Common; June, July, and October.

Mycetophagus flexuosus Say (Mycetophagidae). Four specimens; September.

Litargus tetraspilotus LeC. (Mycetophagidae). Two specimens; June.

Hypophloeus thoracicus Melsh. (Tenebrionidae). Two specimens; May 9. Probably associated with bark beetles, which are not yet identified.

Vespula maculata (L.) (Hymenoptera). Frequent; July through September.

2. NITIDULIDAE FROM OTHER HABITATS IN MARYLAND

Treated under this heading are the Maryland records of Nitidulidae which the writer has found outside of sapflows. As indicated in the list below, some species occur consistently in certain flowers; and in a few of these cases, larval development is known to take place in the flower and in the ensuing fruit, but in others the larval habits have yet to be established. A number of species, all of *Omosita* and *Nitidula,* are known to develop in old carcasses, while a few others are found exclusively on fungi, and still others frequent rotting and fermenting vegetable matter. Larval Nitidulidae have been found frequently in cider mill pomace, but none have been reared. As indicated by asterisks, 15 of the 36 species listed below have also been listed above as visiting sapflows, some species exhibiting the tendency more than others. Many of the remaining 21 species probably are entirely independent of sapflows. Certain ones of the species below are very seasonal in occurrence, and attention should be paid to their dates of distribution.

Boreades abdominalis (Er.). Frequent at apple and pear blossoms; April 30 to May 10; College Park and Catonsville.

Brachypterus sp. To be found during June and July on the flowers of wood nettle, *Urticastrum divaricatum* (L.) Kuntze, almost wherever it grows, usually in damp woods along streams. The writer has searched in vain for this nitidulid on other species of nettle. Catonsville and Plummers Island.

Conotelus obscurus Er. Common in the flowers of *Convolvulus arvensis* L. during June and in the flowers of *Hibiscus palustris* L. during August. College Park and Indian Head.

Colopterus truncatus (Randall). Frequent at fermenting apple pomace during October; Catonsville and College Park.

Colopterus unicolor (Say). Two specimens hibernating with other insects under bark of dead pine on May 5, 1939. College Park.

**Colopterus niger* (Say). Six at apple pomace; October 28, 1950; Catonsville.

**Carpophilus hemipterus* (L.) Frequent at rotton apples and apple pomace during October; Catonsville. Also at rotten watermelon during October; Scotland.

Carpophilus floralis Er. Frequent in the flowers of the cactus *Opuntia vulgaris* Mill., in the unopened and closed flowers of which the larvae develop. June; Piney Point.

Carpophilus melanopterus Er. Common in flowers of cultivated *Yucca filamentosa* L. during June; Catonsville, College Park, and Indian Head.

**Carpophilus sayi* Parsons. Frequent at rotten apples during October; Catonsville.

Carpophilus dimidiatus (F.). Several at rotten watermelon; October; Scotland. One at apple pomace; October 28, 1950; Catonsville.

**Carpophilus brachypterus* (Say). At pear and apple blossoms, late April and May; one in fruit of *Yucca filamentosa* L.; and at rotten apples in October; College Park, Indian Head, and Catonsville.

Carpophilus antiquus Melsh. Common at new sugar corn tassels during July; Catonsville, Indian Head, and Hebron. Also common at rotten watermelon in October at Scotland.

Haptoncus luteolus (Er.). Frequent at fermenting apple pomace during October at Catonsville.

Epuraea helvola Er. Frequent at certain fleshy gill-type mushrooms; July and August; College Park and Indian Head.

Epuraea rufa (Say). Two specimens at light; two at rotten pear; June and October; College Park and Catonsville.

**Epuraea corticina* Er. Common at rotten apples; October; Catonsville. Also at rotten watermelon in September at Scotland.

Epuraea labilis Er. One specimen in pear blossom on April 30; Catonsville.

Epuraea sp. Two specimens hibernating under loose bark of dead *Pinus virginiana* Mill., February 17, 1940, College Park.

Epuraea sp. Sifting floor of pine woods; February 28; College Park.

**Stelidota strigosa* (Gyll.). At rotten fruit of papaw, *Asimina triloba* (L.) Dunal.; September 28; Indian Head. Occasional at rotting apples; October; Catonsville.

**Stelidota geminata* (Say). Common on over-ripe strawberries, fermenting apples, and rotten watermelon; June, September, and October; Catonsville and Scotland. It is interesting to note that two specimens were found at Indian Head on April 11 in dung of raccoon which was composed mostly of poorly digested fruit of *Cornus amomum* Mill.

Stelidota octomaculata (Say). One specimen at rotten fungus, November 11; Indian Head.

**Omosita colon* (L.). Common on old bones and carcasses; March 26 through October; College Park, Indian Head, and Catonsville. Numerous on flowers of goats beard (*Aruncus vulgaris* Raf.); June 8, 1940; Catonsville.

Nitidula bipunctata L. One specimen from old chicken carcass on April 18 at Fort Washington.

Nitidula rufipes (L.). Common in marrow of old meat bones and at old chicken carcass; March 28 to April 18; Indian Head, Fort Washington and Nanjemoy.

Nitidula carnaria (Schall.). Common in marrow of old meat bones and at fish remains; May 16 to 30; Catonsville and Indian Head.

Nitidula ziczac Say. One specimen from old bone on March 26 at Nanjemoy.

**Prometopia sexmaculata* (Say). Common hibernating under loose bark of dead pin oaks in river bottoms at College Park. Found rather generally under loose bark at all localities but not so common.

**Phenolia grossa* (F.). Not common under loose bark of old dead deciduous trees in winter. College Park, Indian Head, and Catonsville.

Pocadius helvolus Er. Common inside developing puff balls (*Calvatia* spp.); August and September; Indian Head and Catonsville.

**Pallodes pallidus* (Beauv.). Common at various fresh fleshy fungi, including *Calvatia, Boletus,* and various gill fungi; June 1 through September 10; College Park, Indian Head, Fort Washington, and Catonsville.

Meligethes sp. (probably *mutatus* Harold). Common on flowers of apple, pear, and *Vibernum;* April 30 to May 21; College Park and Catonsville.

Meligethes sp. On flowers of *Hydrangea arborescens* L. during June; Catonsville.

**Glischrochilus fasciatus* (Oliv.). Numerous at rotten apples during October; Catonsville.

**Glischrochilus sanguinolentus sanguinolentus* (Oliv.). Several at rotten apples; October; Catonsville.

**Glischrochilus quadrisignatus quadrisignatus* (Say). Common at rotten apples and apple pomace; October; Catonsville. It is interesting to note that a specimen was found in company with two *Stelidota geminata* at the raccoon dung mentioned above under this latter species.

(To be continued.)

THE COLEOPTERISTS' SOCIETY MEMBERSHIP

The Coleopterists' Society membership is continuing to increase, so that on November 27 we had 186 members, with a total of 247 subscribers (members and institutions) receiving the Coleopterists' Bulletin. Our goal for this year was set at 250 members and subscribers. We have 14 delinquent subscribers at the present time; these would put us well over our goal if they would renew and become members. G. B. Vogt, Sec'y.

THE HALFTONES IN NUMBER 5

The photographs and halftones used in the previous number of this volume of the Coleopterists' Bulletin were provided by the Smithsonian Institution. This help is gratefully acknowledged. The interest of the Smithsonian Institution in the Casey Collection should be a source of satisfaction to all coleopterists.

R. E. B.

THE FEEDING OF PODABRUS PRUINOSUS LECONTE

(Cantharidae)

By J. W. Tilden

San Jose State College, San Jose, California

The feeding of this species on aphids was observed under a binocular microscope. The aphid is seized directly in the mandibles, without previous palpation, and it would appear that the prey is located by sight. Mastication is for the most part extra-oral, and only the juices are ingested. From time to time the beetle exudes drops of fluid which envelop the prey and are then withdrawn, and the fluid can be seen to pass down the esophagus, by observing the dorsum of the beetle's head which is sufficiently transparent to allow observation. This process suggests extra-oral digestion.

The aphid is revolved in the median longitudinal plane by use of the labrum, which is extended and withdrawn, pushing the aphid forward. The mandibles are eased as the prey is pushed forward, and then re-grasp the prey as the labrum is withdrawn. This process is repeated many times. The aphid is thus revolved away from the labrum, in a direction that appears clockwise if viewed from the right side of the beetle. The aphid is revolved from 60 to 79 times at a rate of about twice per second before being discarded.

At the end of this process, the remaining fluids are extracted by crushing the prey between the mandibles. The aphid is reduced to a small ball-shaped mass of exoskeleton, which is then dropped. If it should cling to the beetle's mouthparts, the forelegs are raised and used to push the mass away.

Neither pair of palpi is used in the feeding process, although both pairs are continually vibrated rapidly. The entire time required to eat one aphid is from one and one-half to two minutes. After each feeding, the cantharid cleans the mouthparts and the antennae by means of the tarsi of the front legs. A short period of resting occurs between each feeding, even when aphids are abundant in the vicinity.

Bibliographia

FIRST JUNK CATALOGUS SUPPLEMENT APPEARS

The first of the Coleopterorum Catalogus Supplementa (Pars 1: Rhysodidae) was received in late August. This series is under the editorship of W. D. Hincks (vide: Col. Bull., vol. 3, pp. 30-32) and is printed by Uitgeverij Dr. W. Junk in the same format as the Junk Schenkling original catalog. This first part is a complete catalog of this family, but the larger parts will simply be supplements designed to bring the original catalogs up to date.

It is also to be noted that the entire set of 31 volumes, 1910-1940, is still available at 1200 Dutch Gilders (circa $400.00), except that five of the parts, destroyed during the war, are not available. These parts are being reprinted, and apparently orders are being accepted for them.

R. H. Arnett, Jr.

CURRENT LITERATURE

Compiled by Ross H. Arnett, Jr.

This section is designed to contain all papers on the Coleoptera of North and South America which are not in the Leng (1920) catalogue or the supplements, or papers containing new species and records not included in Blackwelder's Neotropical checklist and which have not been previously listed in The Coleopterists' Bulletin.

Additions to the list of publications available:

Biblio. Agric.—Bibliography of Agriculture

Indian Journ. Ent.—The Indian Journal of Entomology

Bol. Ent. Venezolana—Boletin de Entomologia Venezolana

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NOTICES

Wants, exchanges, current research notices and similar material will be published under this heading and this service is available to all, providing it is confined to the fields covered by this bulletin.

CHANGE OF ADDRESS: Dr. J. Linsley Gressitt has left Canton, China. His new address is: 648 Hiratsuka-cho, 2-chome, Shinagawa-Ku, Tokyo, Japan.

INSECT LABELS—Printed in trimmed strips, one cut makes a label. Width of margins can be varied to suit the individual. Two and three line labels in either 3½ or 4 pt. type at $.50 per 500 of one exact label, $.75 per 1,000 and $.50 for each additional thousand of the same label. For four lines add $.05 per 500 (.55, .85, .55) and for five lines add $.10. Determination labels priced according to depth of label. No order for less than $.75. Samples on request. **THE NATURE COMPANY, P. O. Box 403, Covington, La.**

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WANTED TO BUY—ELMIDAE, DRYOPIDAE, LIMNICHIDAE, PSEPHENIDAE, EUBRIIDAE from exotic areas; will determine American species. Adults and larvae. Harry G. Nelson, Dept. of Biology, Herzl Jr. College, Chicago 23, Ill.

PSAMMODIUS (SCARABAEIDAE: APHODIINAE) from North, Central, and South America wanted for revisional study. Will be glad to determine specimens for privilege of examination. O. L. Cartwright, Div. of Insects, U. S. National Museum, Washington 25, D. C.

HELODIDAE AND DASCILLIDAE of the world. Studying these families and would be glad to receive specimens in exchange for Australian material. J. W. Armstrong, ''Callubri,'' Nyngan, N.S.W., Australia.

WANTED—Bull. Buffalo Soc. Nat Sci., vols. 2-3; Proc. Ent. Soc. Philadelphia, vols. 1-6; Trans. American Ent. Soc., vols. 1-5; C. F. dos Passos, Mendham, N. J.

CERAMBYCIDAE, CHRYSOMELIDAE—of Pacific and Eastern Asia desired for study. At present work in progress on Cerambycidae, Hispinae, and Cassidinae from New Guinea, Philippines, China, etc. Will purchase material from some areas. Certain groups available for exchange. J. L. Gressitt, c/o E. S. Ross, California Academy of Sciences, San Francisco 18, Calif.

CURCULIONIDAE, CHRYSOMELIDAE, STAPHYLINIDAE, PHALACRIDAE—Identifications needed of Michigan examples in these and other families; also in the genera Cis, Canifa, Aphorista, Hallomenus, Scotochroa, Monachus, Lyctus. R. R. Dreisbach, 301 Helen Street, Midland, Mich.

DYTISCIDAE—Wanted to borrow or exchange specimens of *Hydrocanthus* (any species). Especially interested in seeing large series from single locality. Specimens returned promptly. F. N. Young, Zoology, Indiana Univ., Bloomington, Indiana.

CHRYSOMELIDAE—Revising the genus *Elytrosphaera.* I would be glad to receive specimens from Mexico and South America. Will purchase or exchange. P. Jolivet, 6 rue de Balzac, Franconville, S. et. O., France.

Oedemeridae—Desire Neotropical Oedemeridae for revisional studies. R. H. Arnett, Jr., U.S. National Museum, Washington 25, D. C.

SILPHIDAE—Would like to exchange French species of Silphidae (Silphini, Necrodini and chiefly Necrophorini) for American species of the same group (unmounted dry specimens). J. Theodorides, Laboratoire Arago, Banyuls s/mer Pyr. Or., France.

COCCINELLIDAE OF THE WORLD—Will purchase mounted or unmounted specimens, also literature on this family. Will determine species of any locality. Willard H. Nutting, 786 Santa Ray Ave., Oakland 10, California.

OFFERING, FOR CASH—Plusiotis woodi; Scaphinotus flammeus; Callichroma plicatum; Cicindela vulturina, and Canthon ebenus. L. H. Bridwell, Forestburg, Texas.

WANTED FOR IMMEDIATE STUDY—Clerid beetles belonging to the genus *Cymatodera* especially those from Central America. W. F. Barr, 112 Agricultural Hall, University of California, Berkeley 4, California.

JAPANESE BEETLES in exchange for Cerambycidae of America. I have at hand a good many specimens from the Japanese fauna. I desire to exchange our Coleoptera for American and other foreign Cerambycidae. Yoshiaki Nishio, Agriculture and Forestry Ministry, Sapporo, Japan.

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